DRAWINGS

There is attached 34 sheets of drawings.

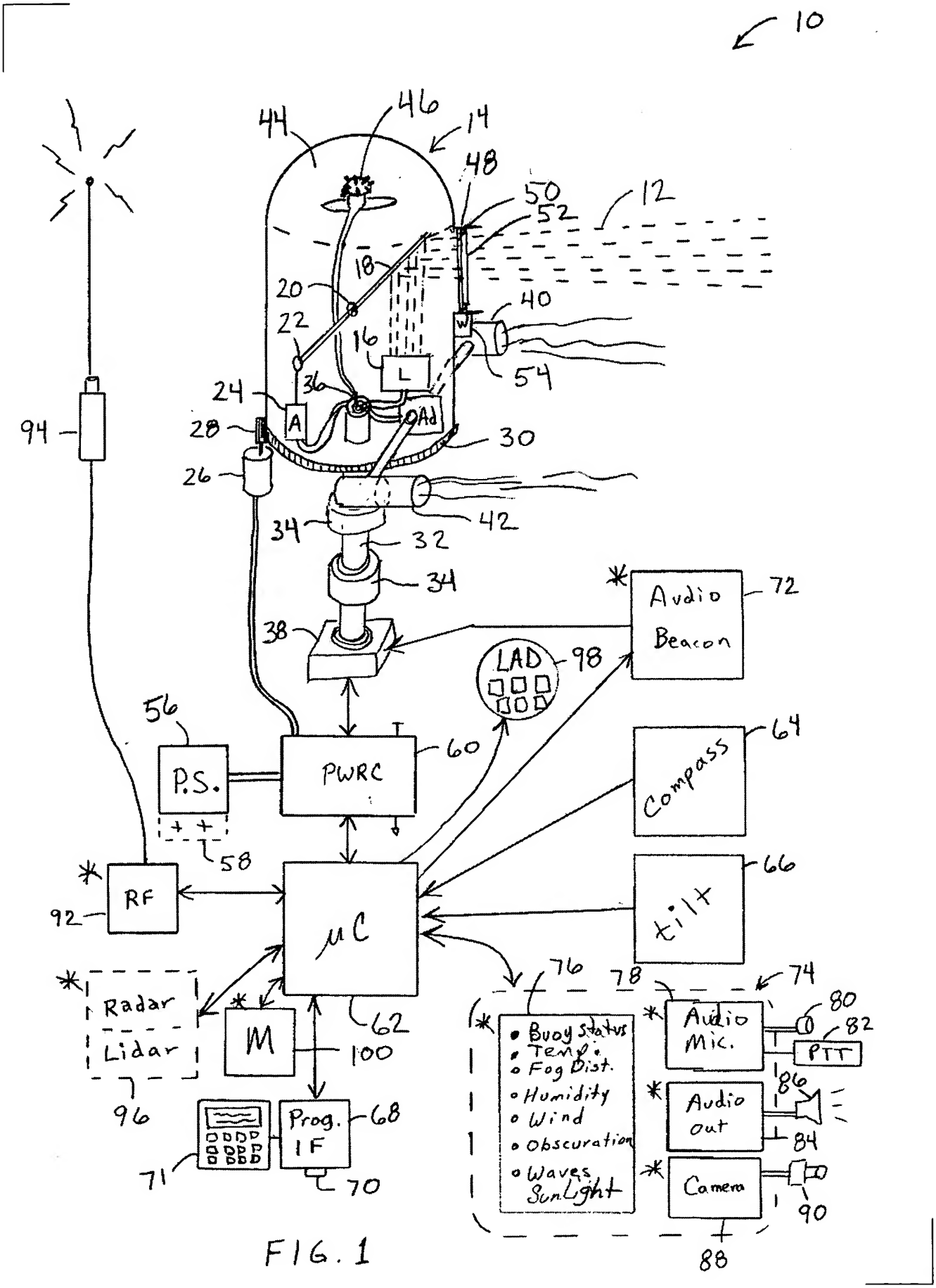
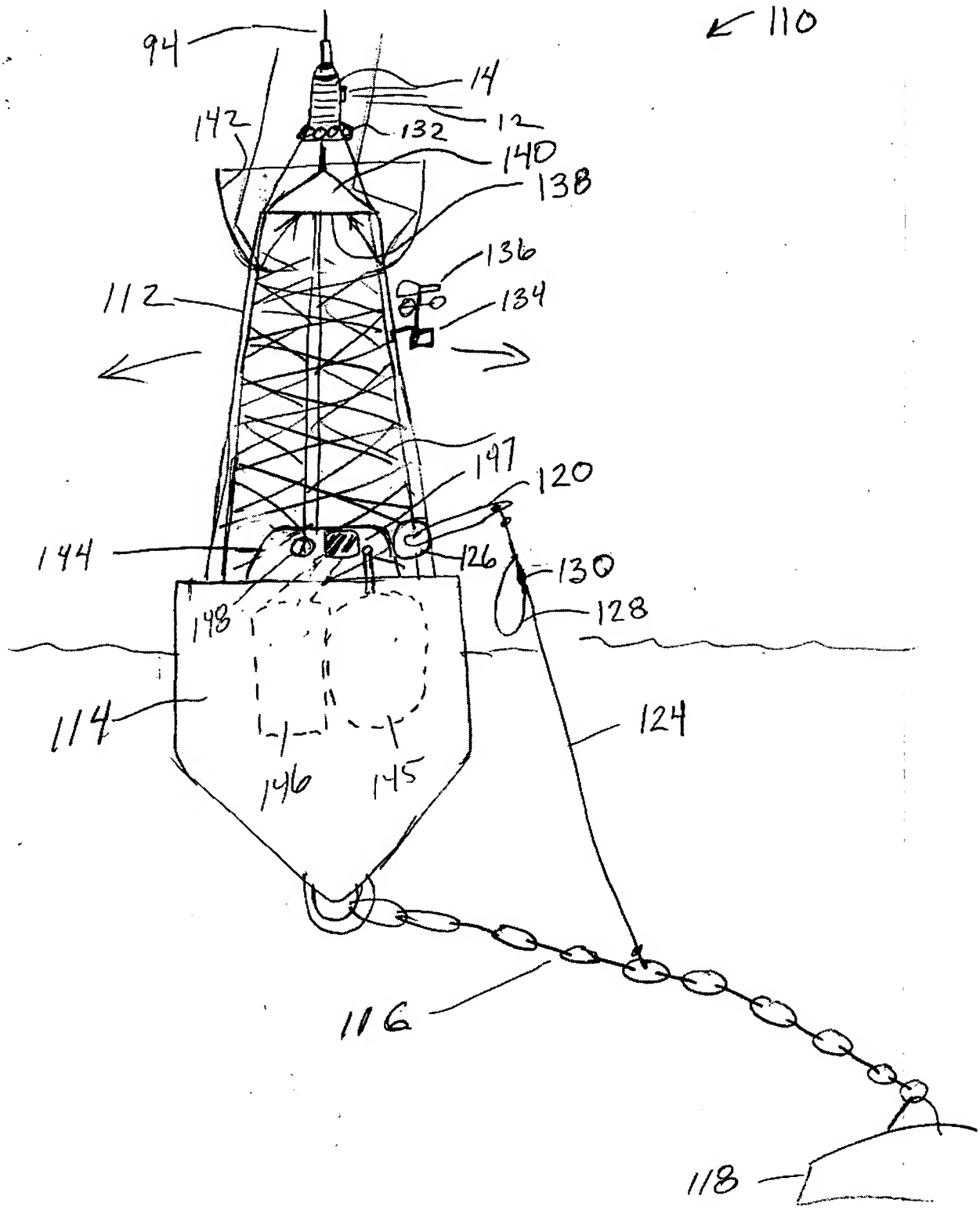
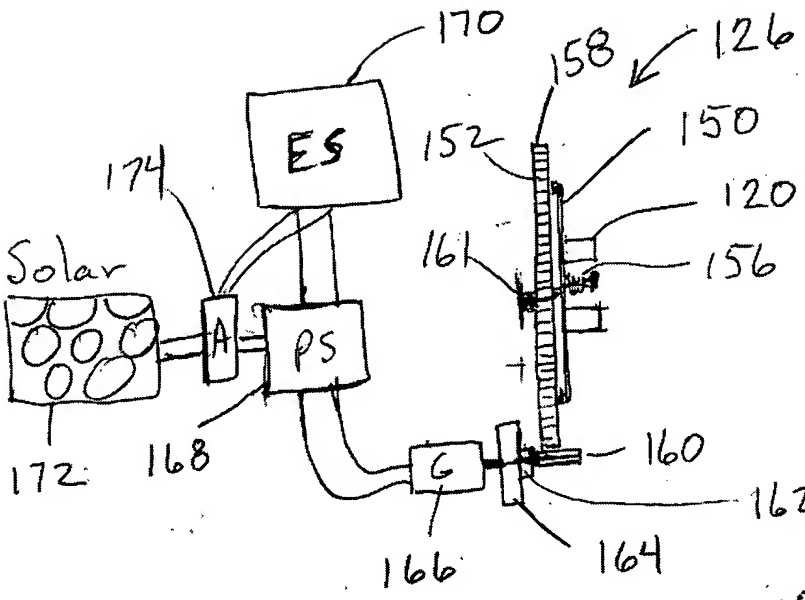

10
44
46
14
48
50
52
12
18
20
22
16
40
54
24
36
28
30
26
42
34
32
94
38
Audio Beacon
72
LAD
98
56
P.S.
PWRC
60
64
Compass
58
RF
92
μC
66
Tilt
76
78
74
Radar
Lidar
96
M
62
100
80
Audio Mic.
82
PTT
86
Audio out
84
Prog. IF
68
71
70
Buoy Status
Temp.
Fog Dist.
Humidity
Wind
Obscuration
Waves
Sun Light
Camera
90
88

FIG. 1


110
94
14
12
142
132
140
138
136
112
134
147
120
144
126
130
128
148
114
124
146
145
116
118

F16.2



F16.3

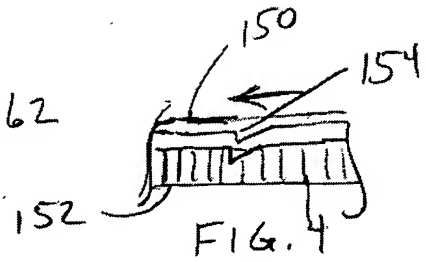
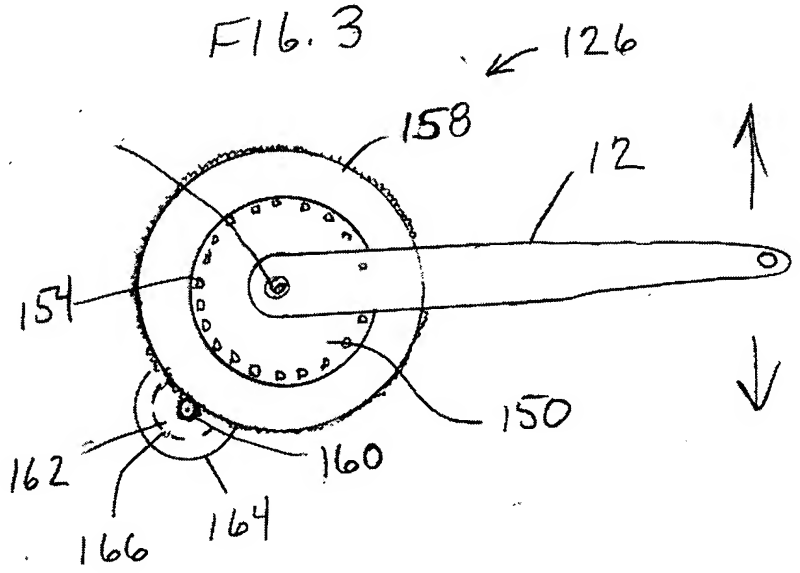


FIG. 4



F16.5

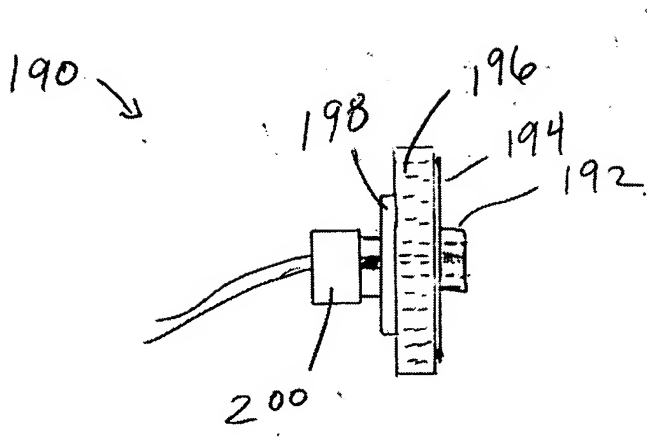
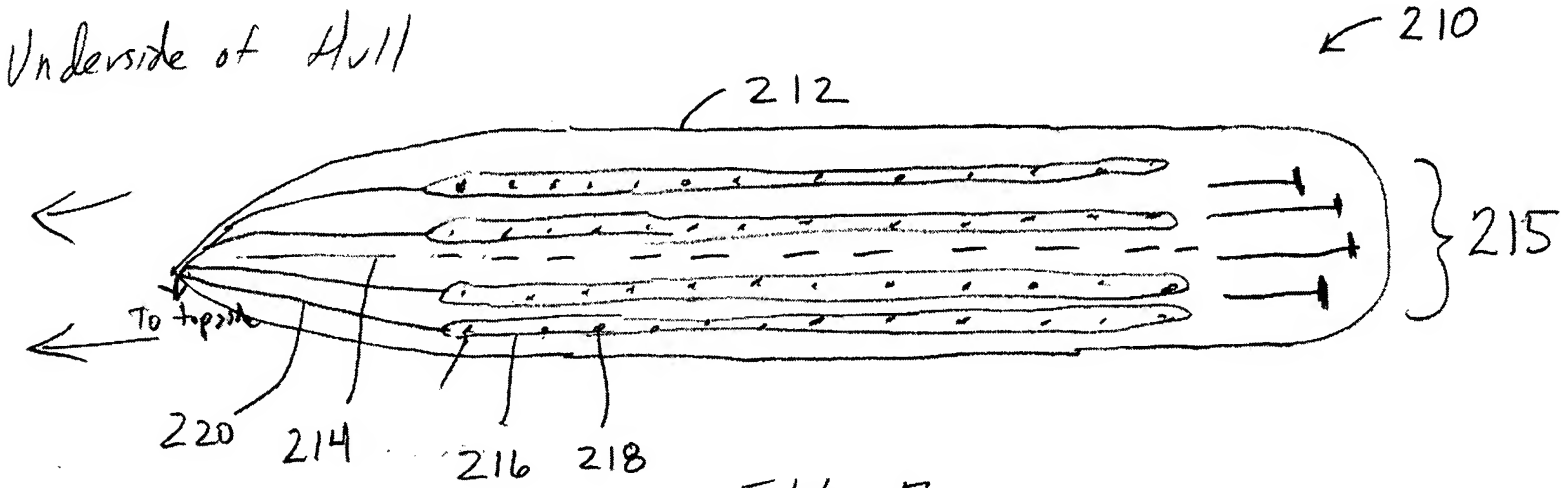
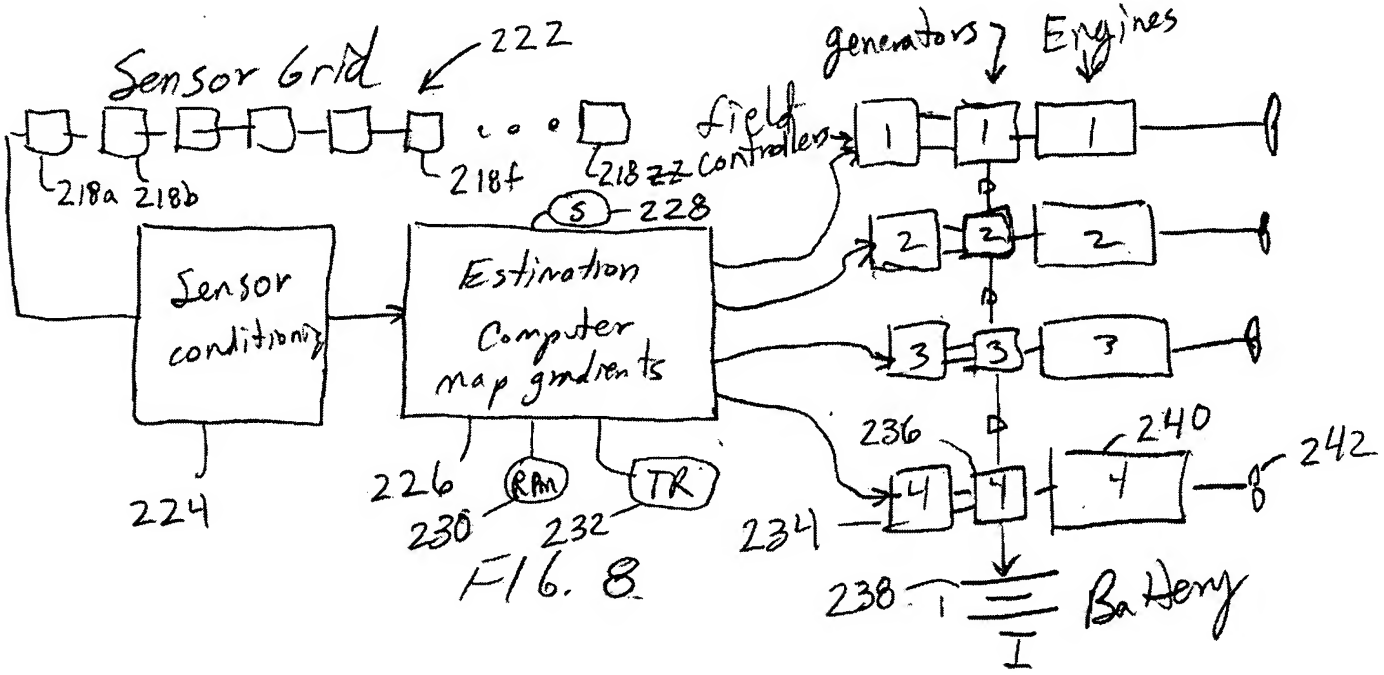


FIG. 6


Underside of Hull
210
212
215
To tip
220
214
216
218

F16. 7


Sensor Grid
222
generators
Engines
field controllers
218a
218b
218f
218zz
5
228
Sensor conditioning
Estimation Computer map gradients
224
226
RAM
230
TR
232
236
240
242
234
238
Battery

F16. 8

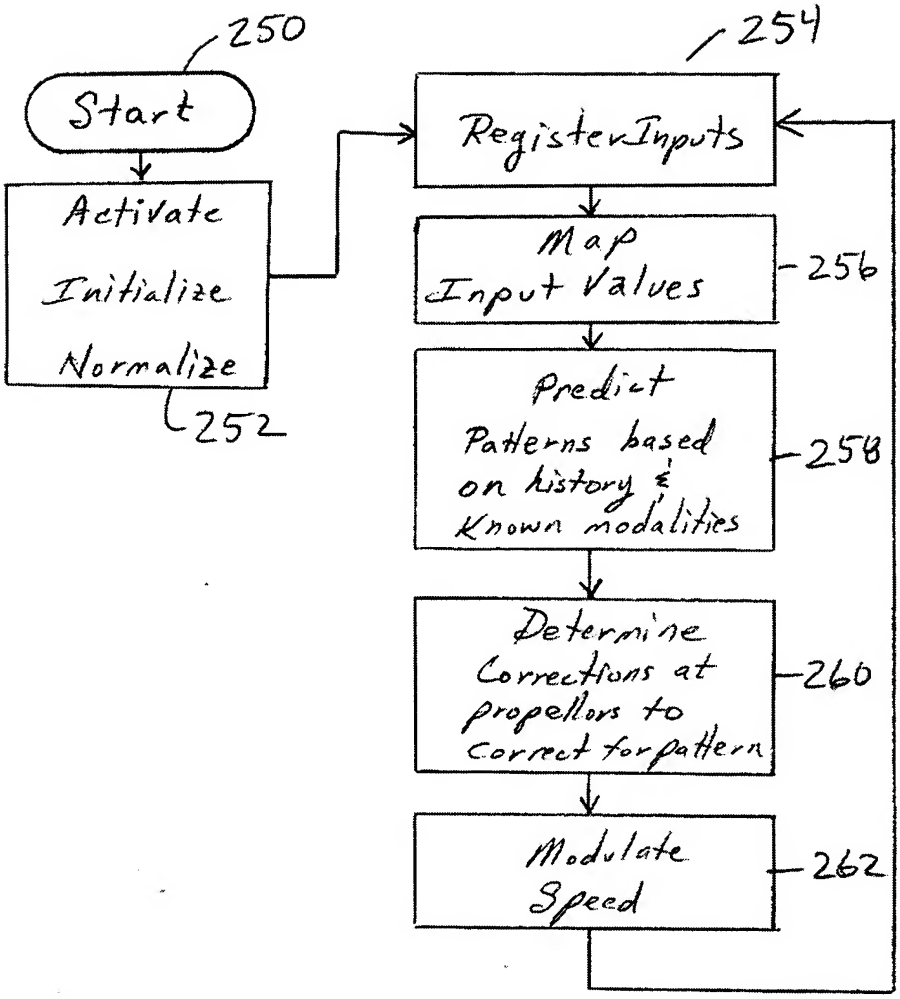

250
Start
Activate
Initialize
Normalize
252
254
Register Inputs
Map
Input Values
256
Predict
Patterns based
on history &
Known modalities
258
Determine
Corrections at
propellors to
correct for pattern
260
Modulate
Speed
262

FIG. 9

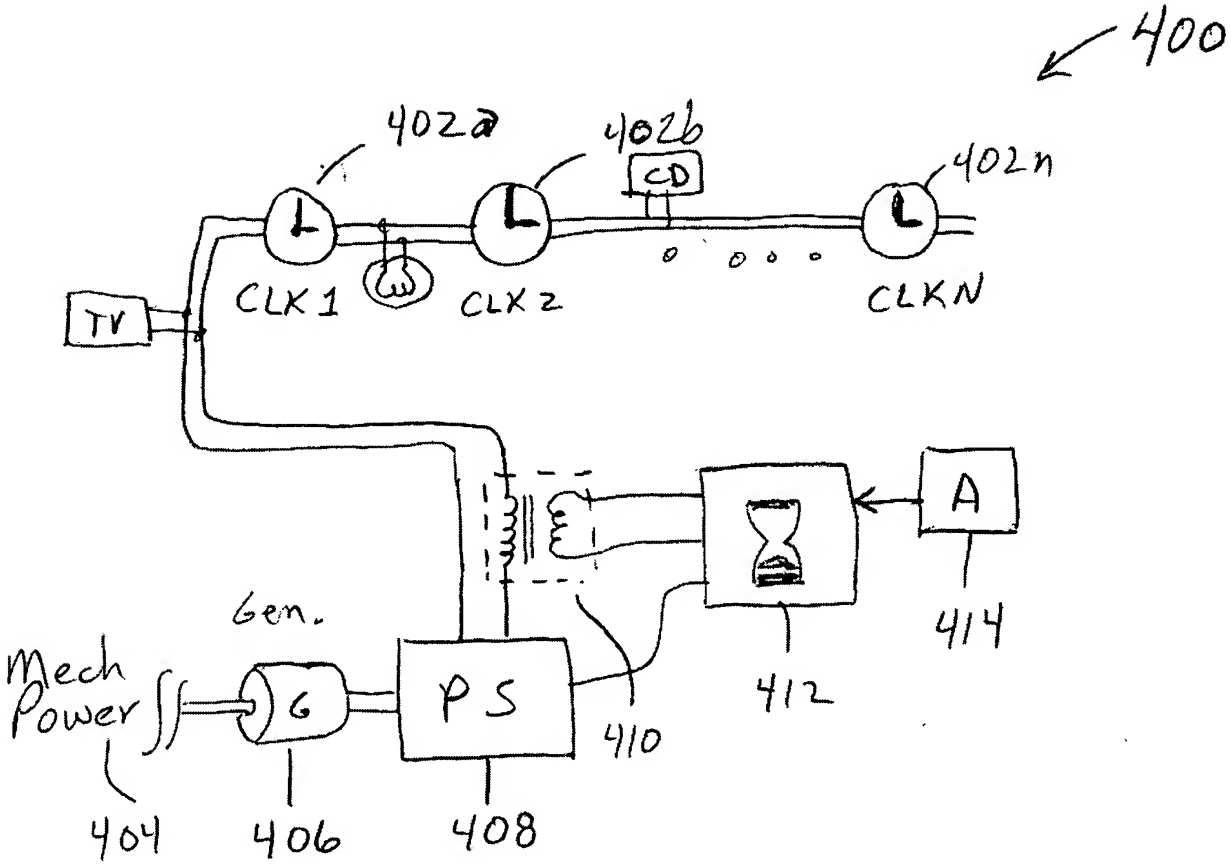

400
402a
402b
CD
402n
CLK 1
CLK 2
CLKN
TV
A
414
412
Gen.
Mech Power
G
PS
410
404
406
408

FIG. 10

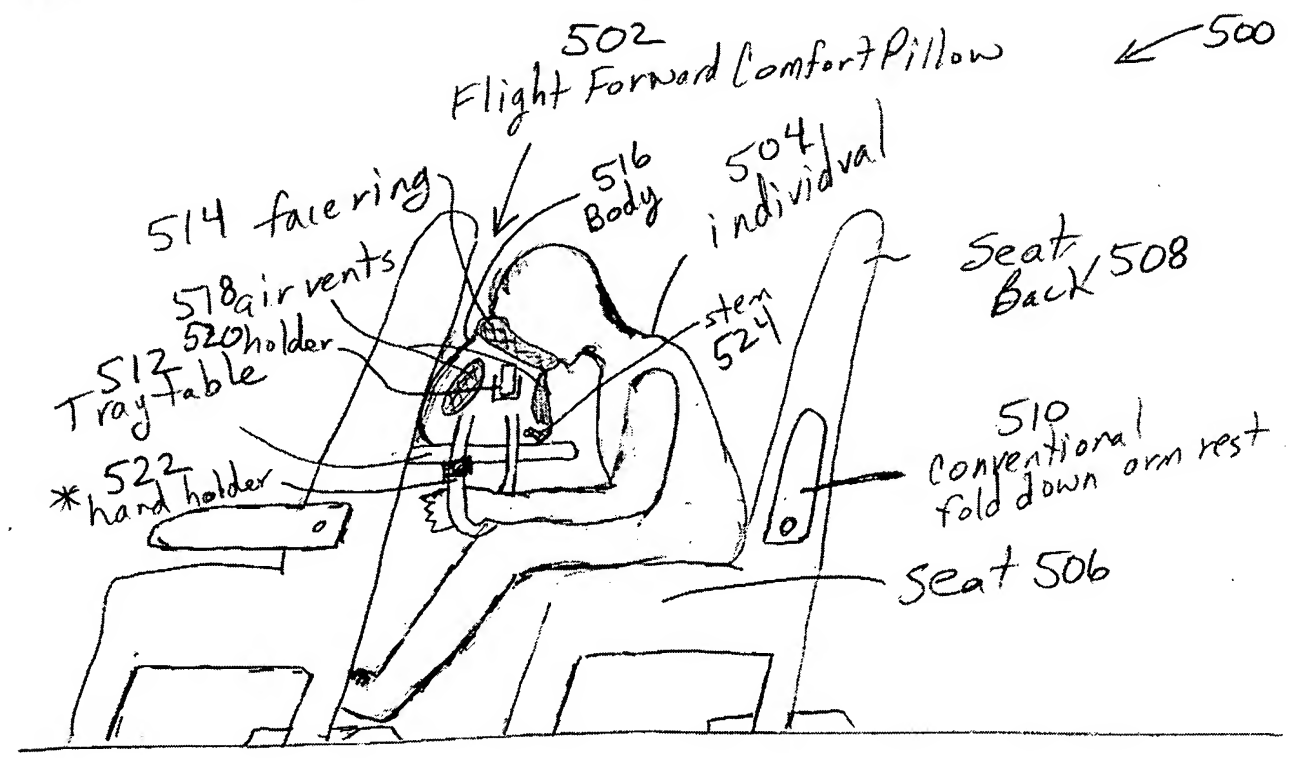


FIG. 11

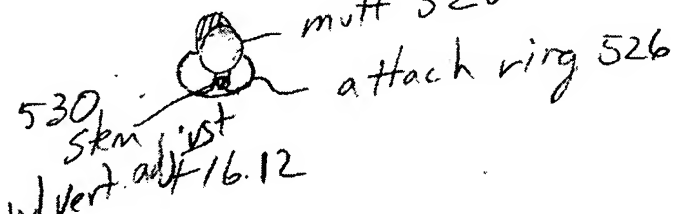


FIG. 12

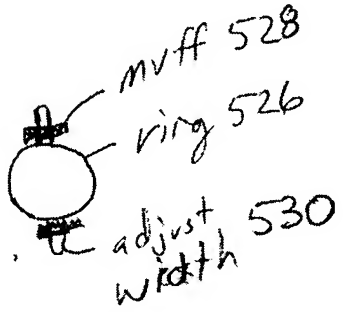


FIG. 13

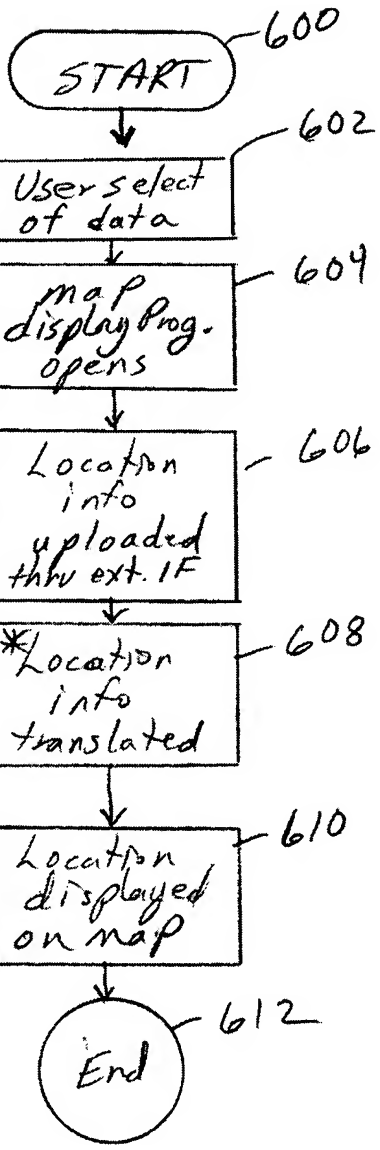

START
600
User select of data
602
map display prog. opens
604
Location info uploaded thru ext. IF
606
*Location info translated
608
Location displayed on map
610
End
612

FIG. 14

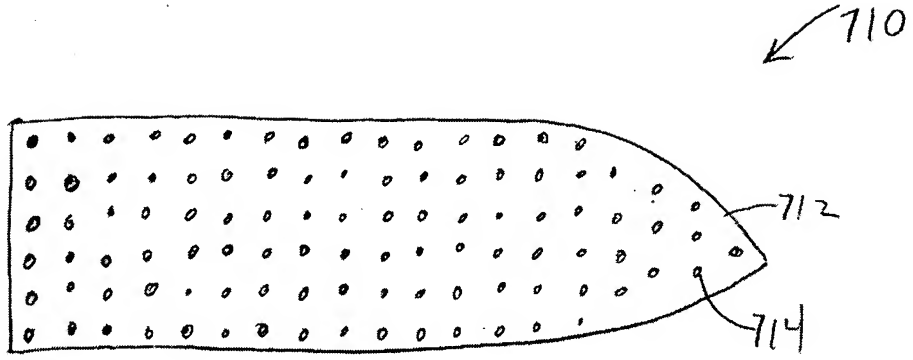


FIG. 15

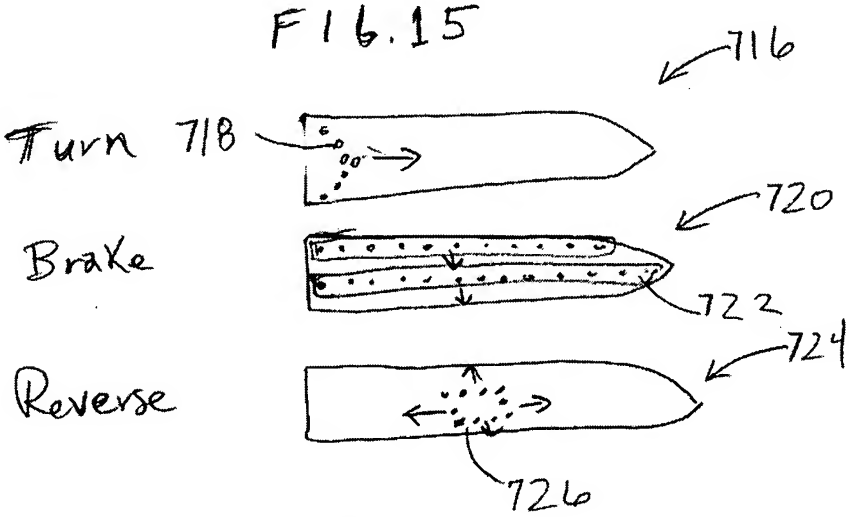


FIG. 16

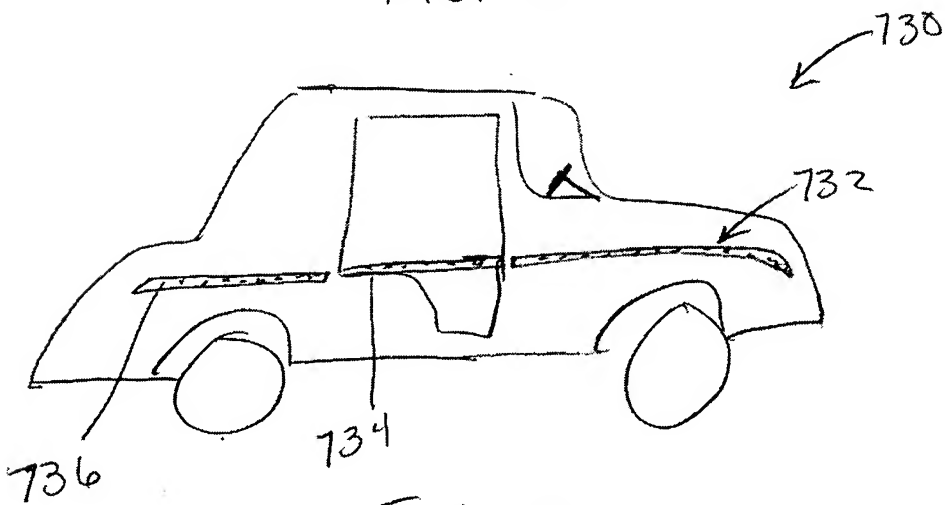


FIG. 17

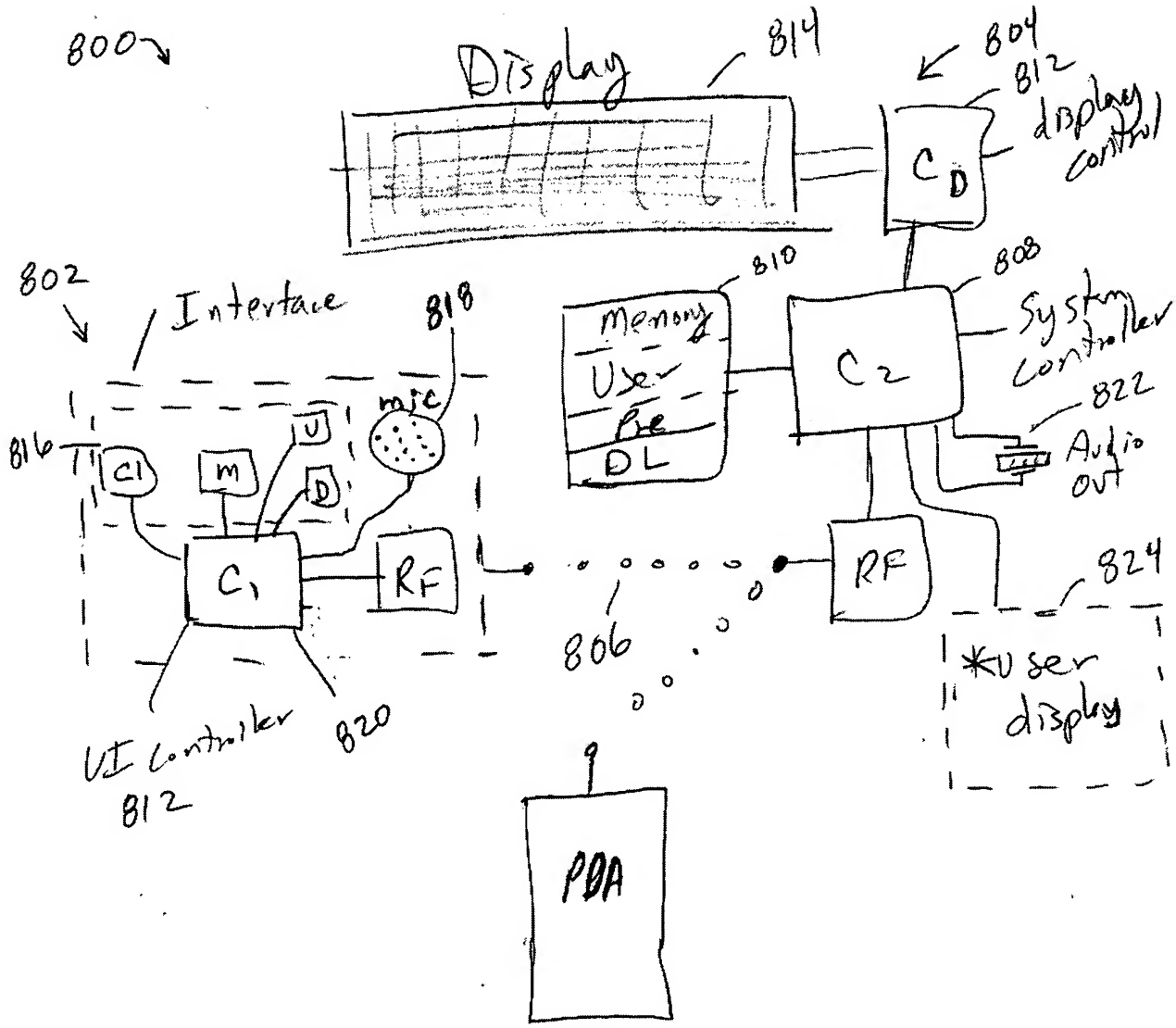

800
Display
814
804
812
display control
C_D
802
Interface
818
810
808
Memory
User
Pre
DL
C_2
System controller
822
Audio out
816
C1
m
U
D
mic
C_1
RF
RF
824
806
*User display
UI Controller
812
820
PDA

FIG. 18

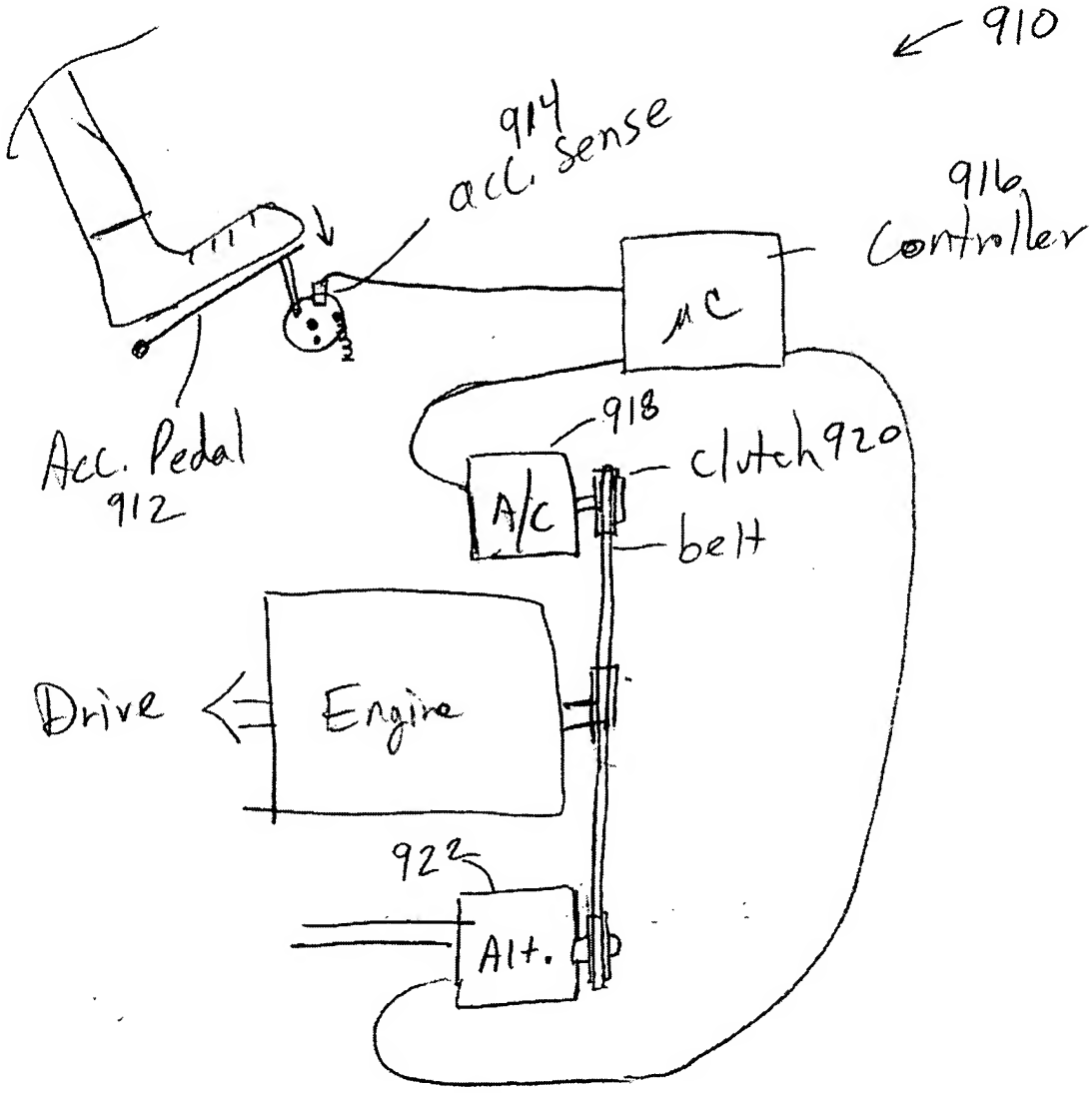

910
914
acc. sense
916
Controller
μC
Acc. Pedal
912
918
clutch 920
A/C
belt
Drive
Engine
922
Alt.

FIG. 19

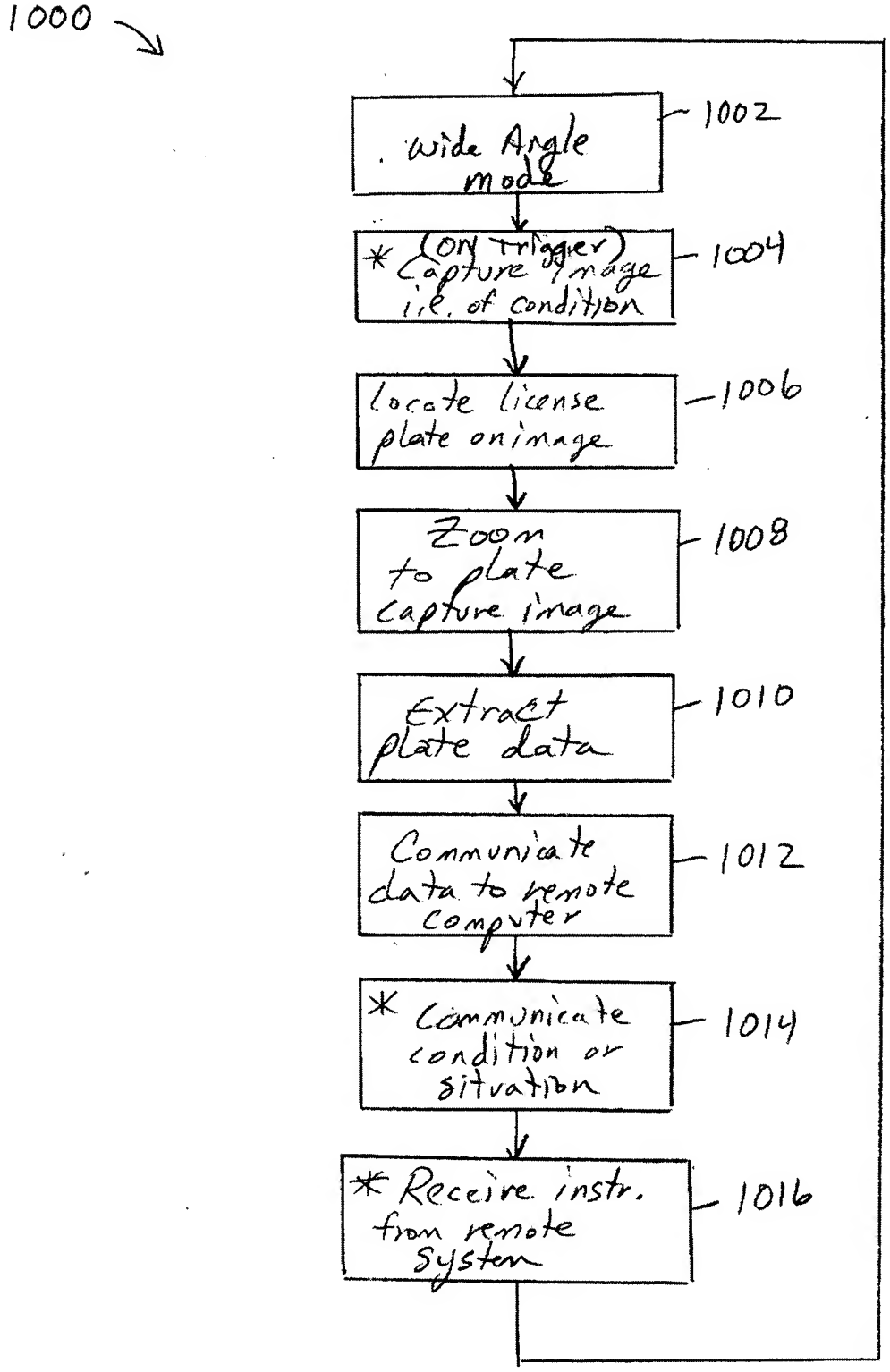

1000
Wide Angle mode
1002
* (On Trigger) Capture image i.e. of condition
1004
locate license plate on image
1006
Zoom to plate capture image
1008
Extract plate data
1010
Communicate data to remote computer
1012
* Communicate condition or situation
1014
* Receive instr. from remote system
1016

FIG. 20

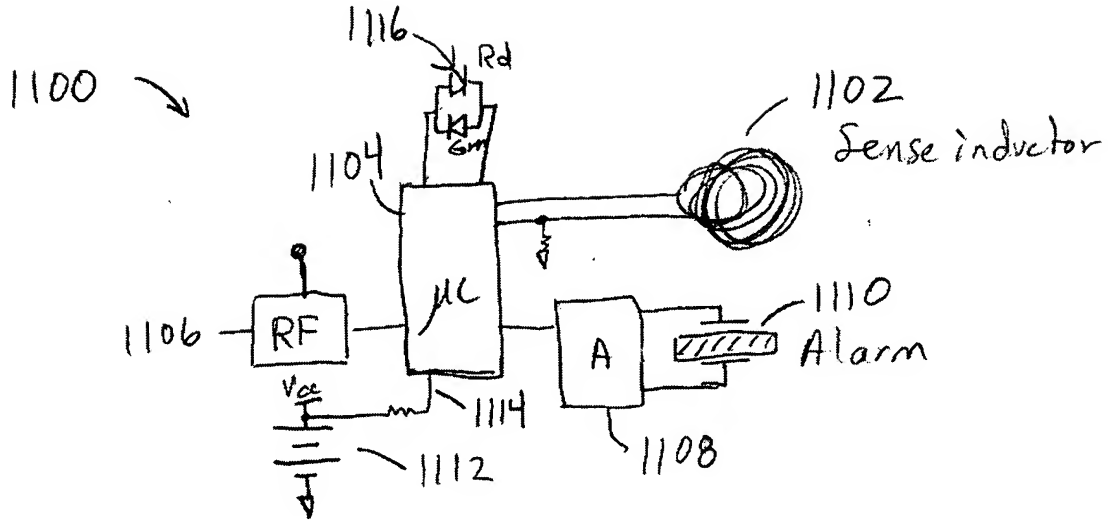

1100
1116
Rd
Gm
1104
1102
Sense inductor
µC
1106
RF
A
1110
Alarm
Vcc
1114
1112
1108

FIG. 21

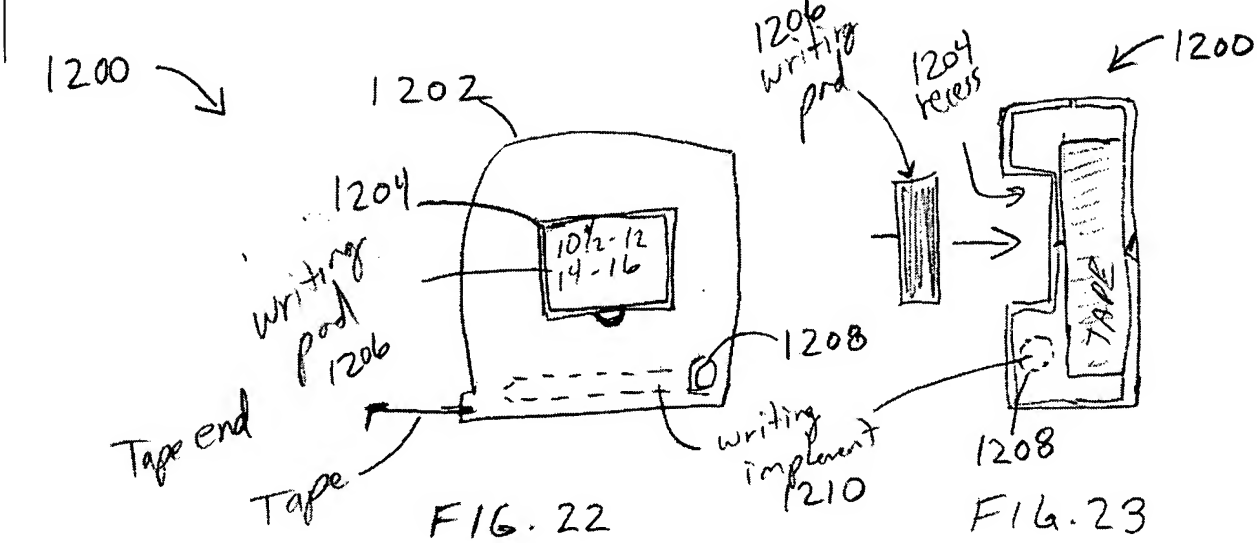


FIG. 22

FIG. 23

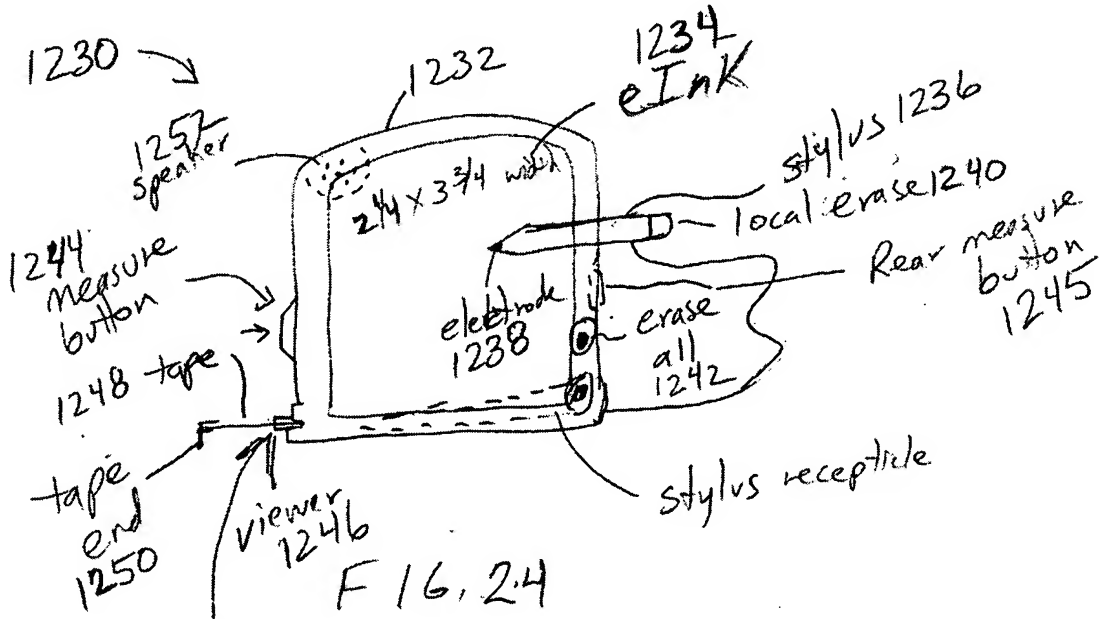


FIG. 24

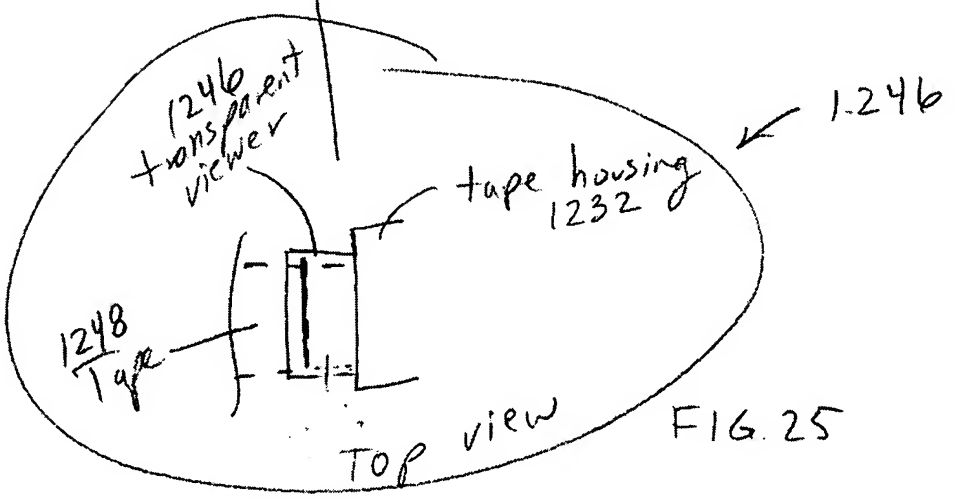


FIG. 25

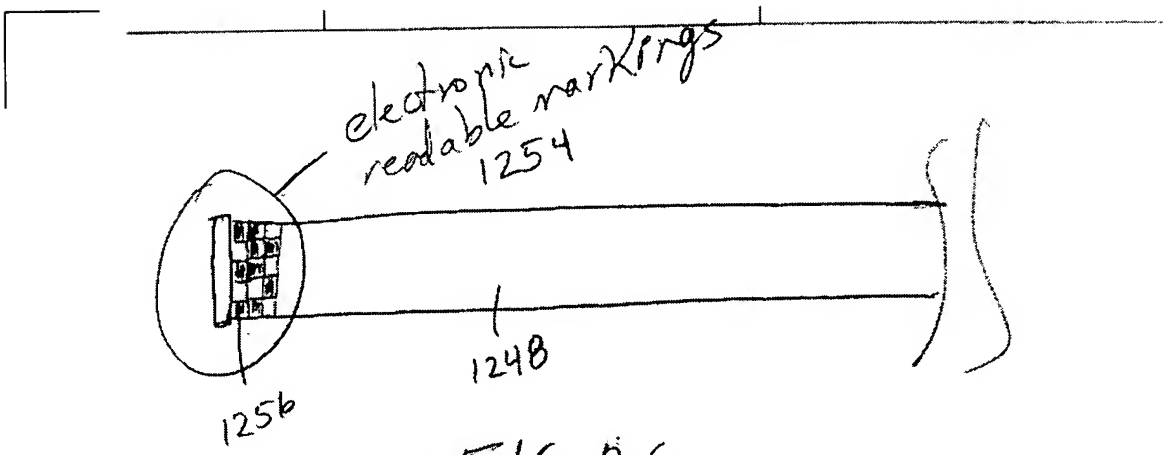


FIG. 26

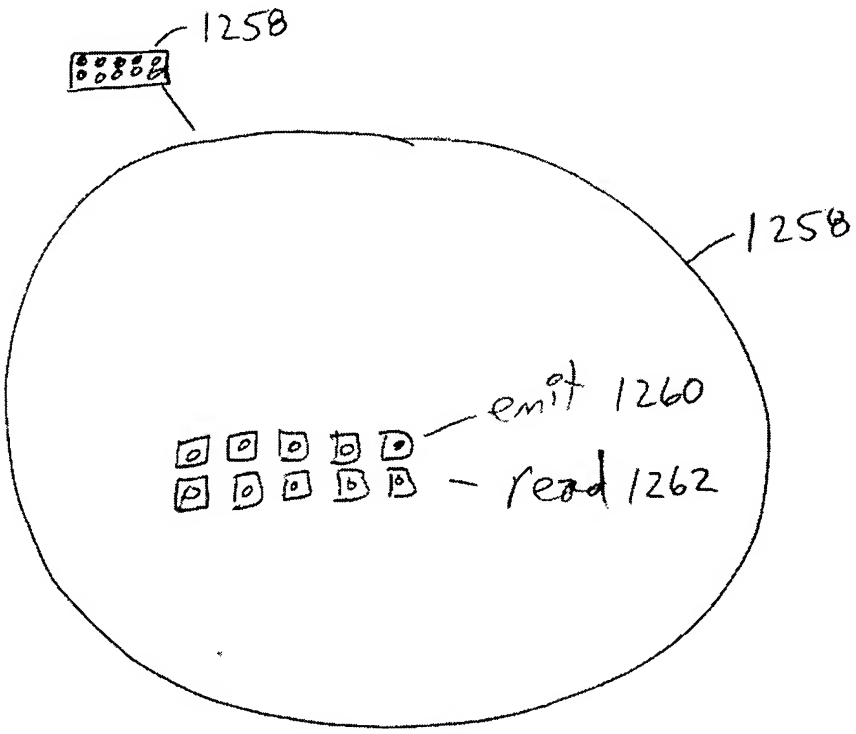


FIG. 27

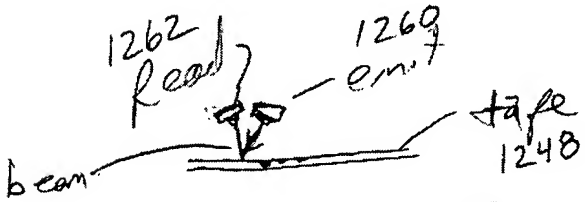


FIG. 28

Controls - ← 1260

- ☐ Take Reading - to Front or to Back
- ☐ Save Reading
  - ☐ * to a ~~Selected~~ memory
- ☐ Erase a Reading
- ☐ Replace a reading
- ☐ store written text
- ☐ store audio

FIG. 29

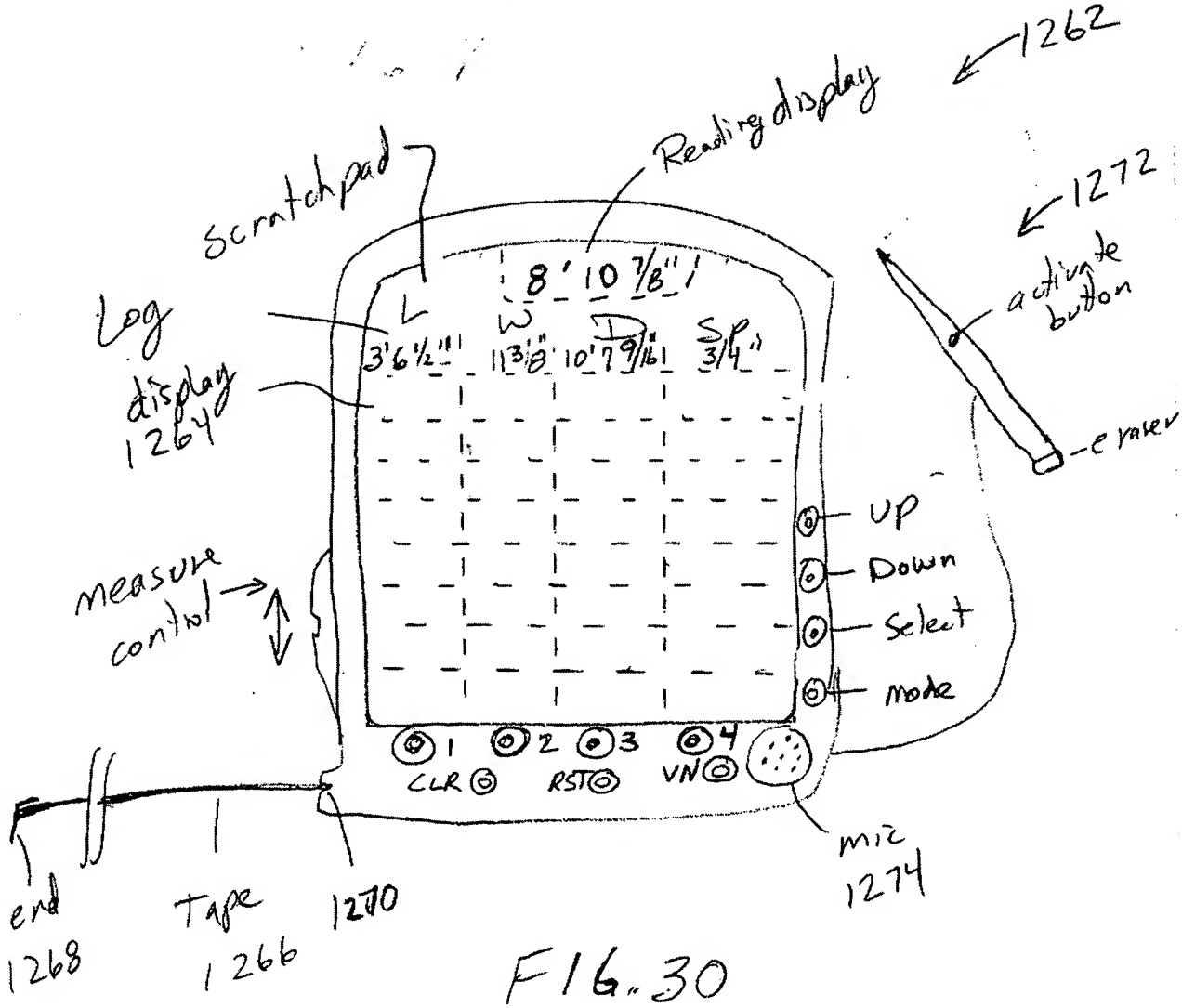


FIG. 30

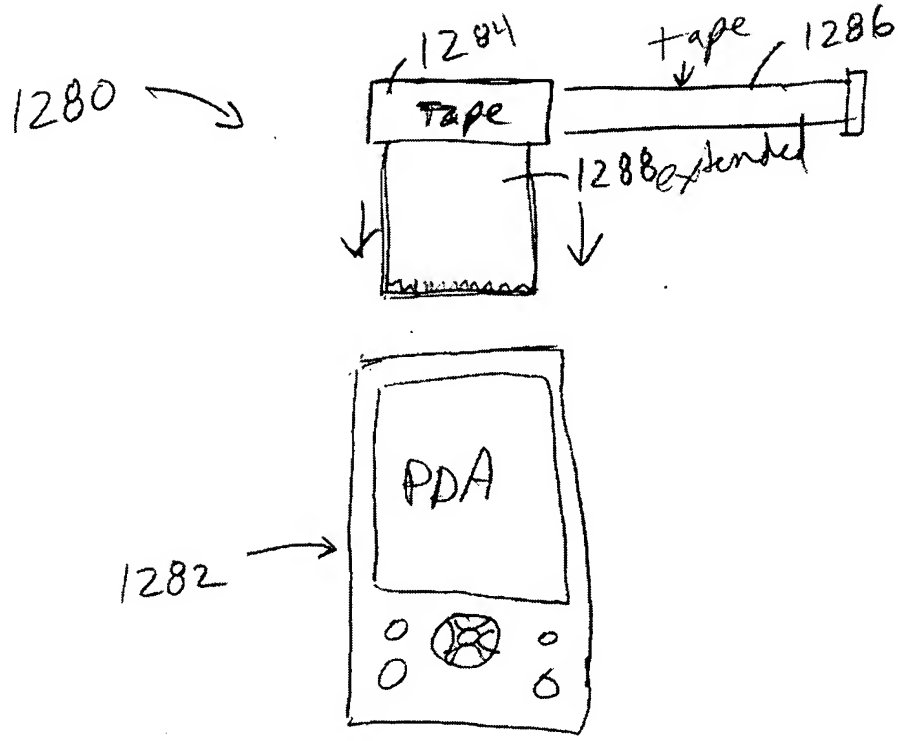

1280
1284
Tape
tape
1286
1288 extended
PDA
1282

FIG. 31

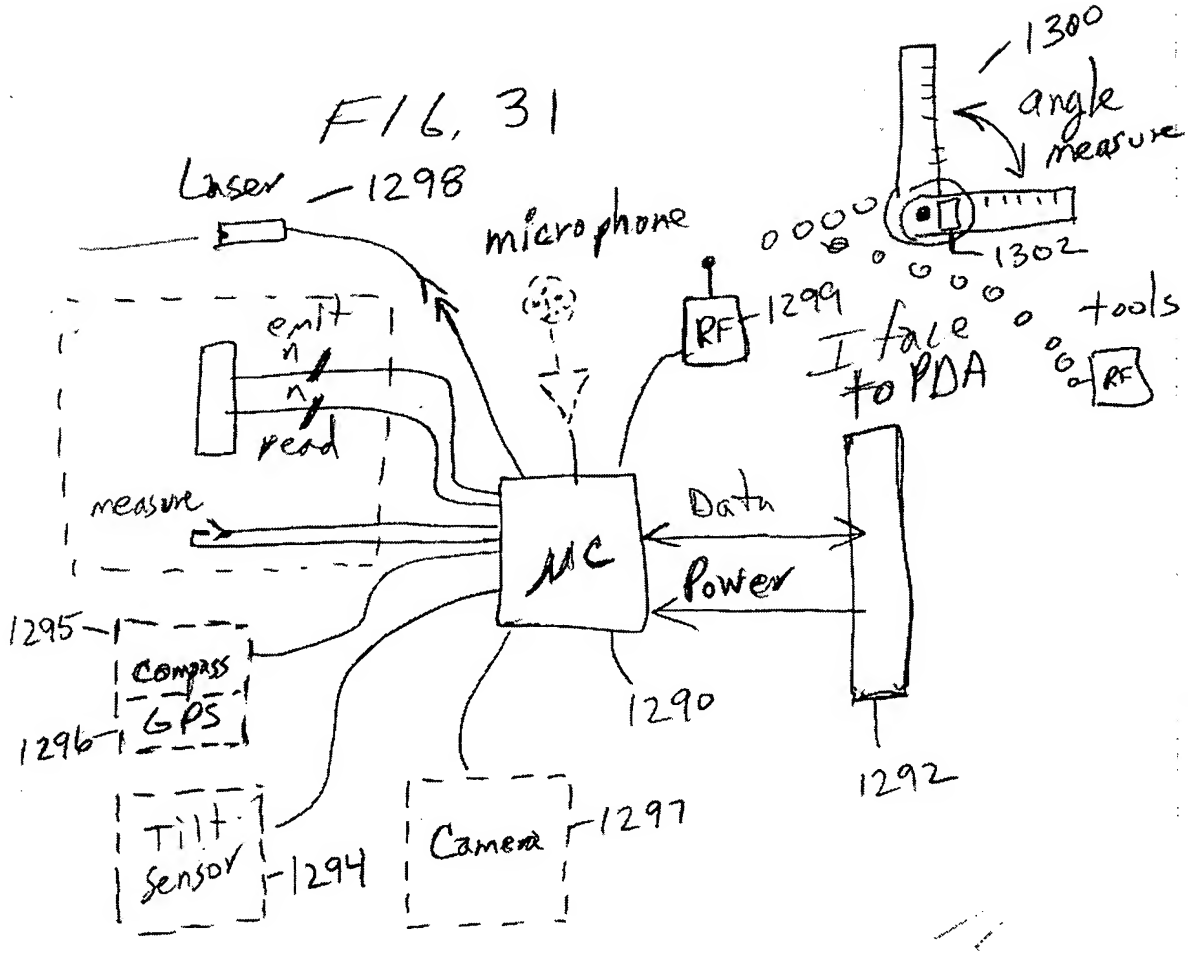

1300
angle measure
1302
Laser
1298
microphone
RF
1299
I face
to PDA
tools
RF
emit
n
n
read
measure
MC
Data
Power
1295
Compass
GPS
1296
Tilt
Sensor
1294
Camera
1297
1290
1292

FIG. 32

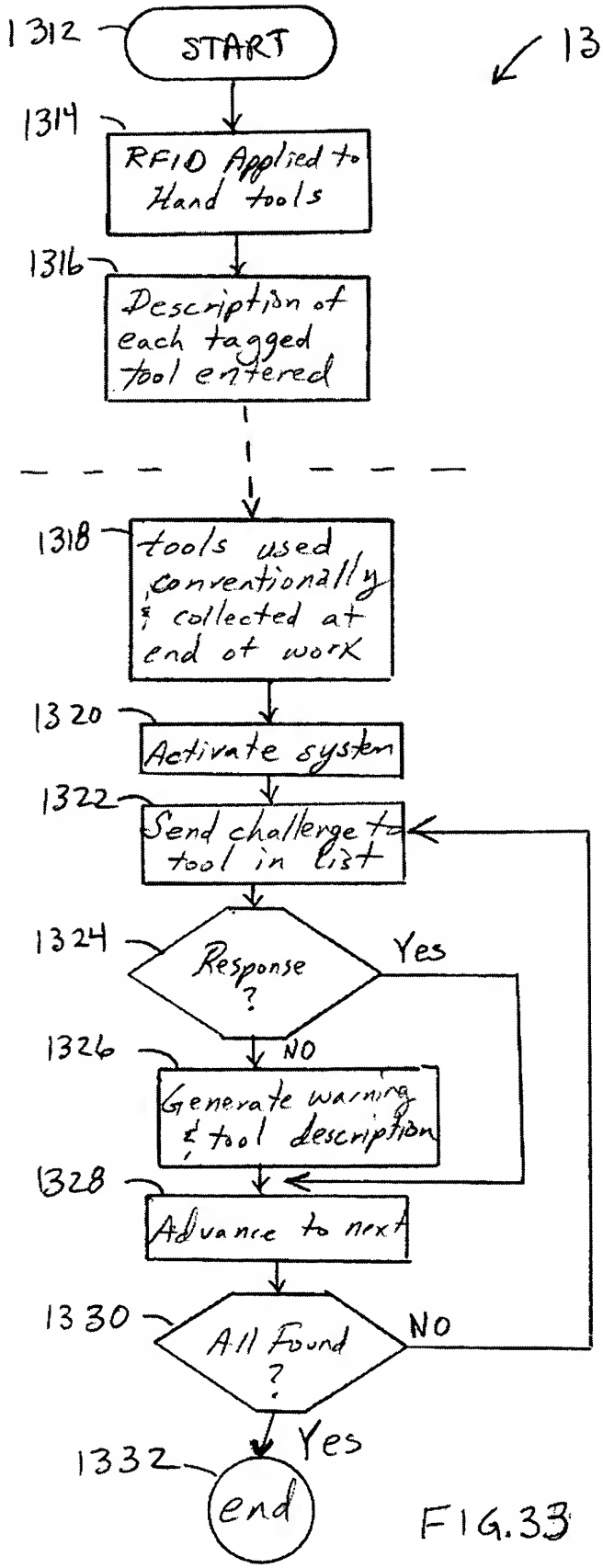

1312
START
1310
1314
RFID Applied to Hand tools
1316
Description of each tagged tool entered
1318
tools used conventionally & collected at end of work
1320
Activate system
1322
Send challenge to tool in list
1324
Response ?
Yes
NO
1326
Generate warning & tool description
1328
Advance to next
1330
All Found ?
NO
Yes
1332
end

FIG.33

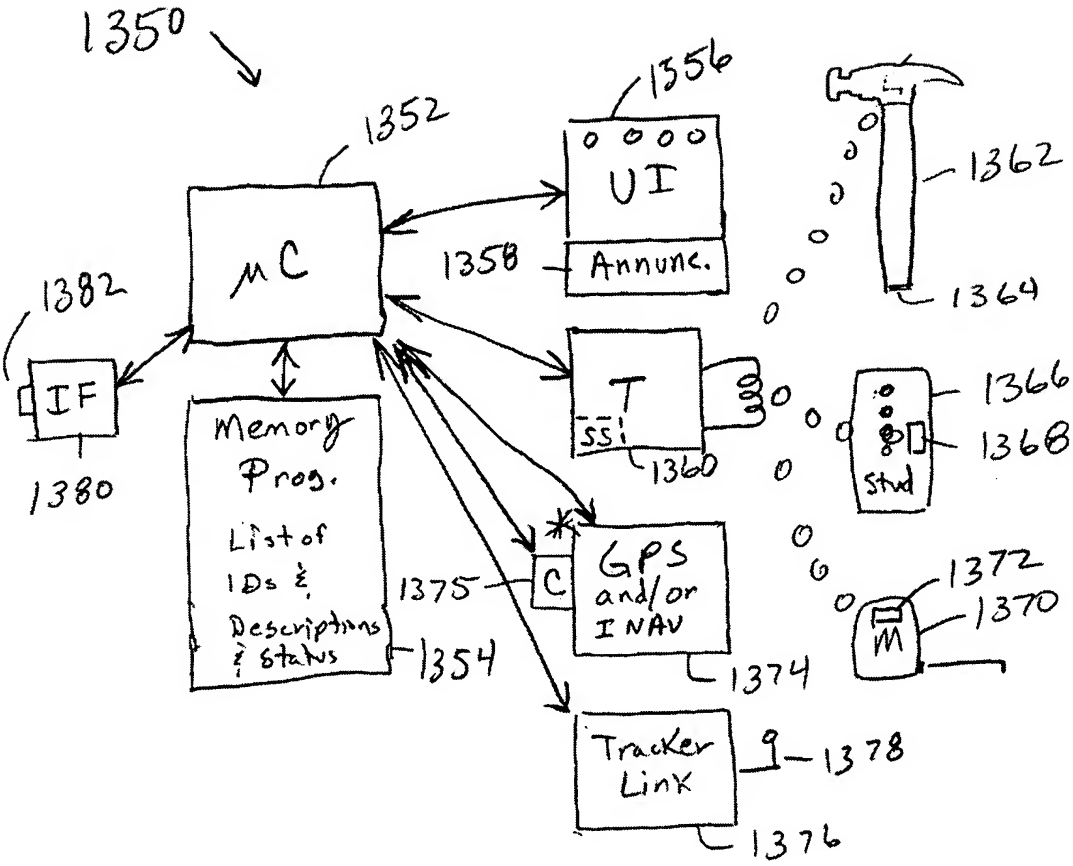

1350
1352
1356
UI
MC
1358
Annunc.
1362
1364
1382
IF
1380
Memory
Prog.
List of
IDs &
Descriptions
& status
1354
T
SSI
1360
1366
1368
Stud
1375
C
GPS
and/or
INAV
1374
1372
1370
Tracker
Link
1378
1376

FIG. 34

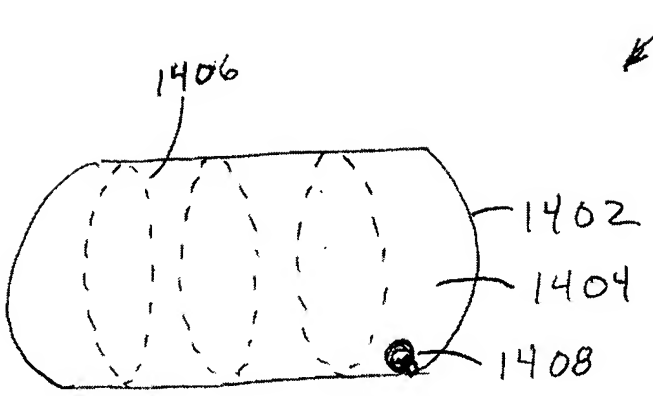


FIG. 35

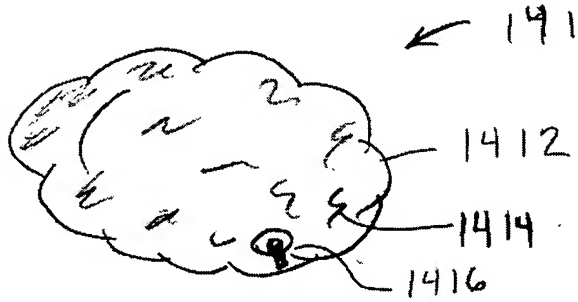


FIG. 36

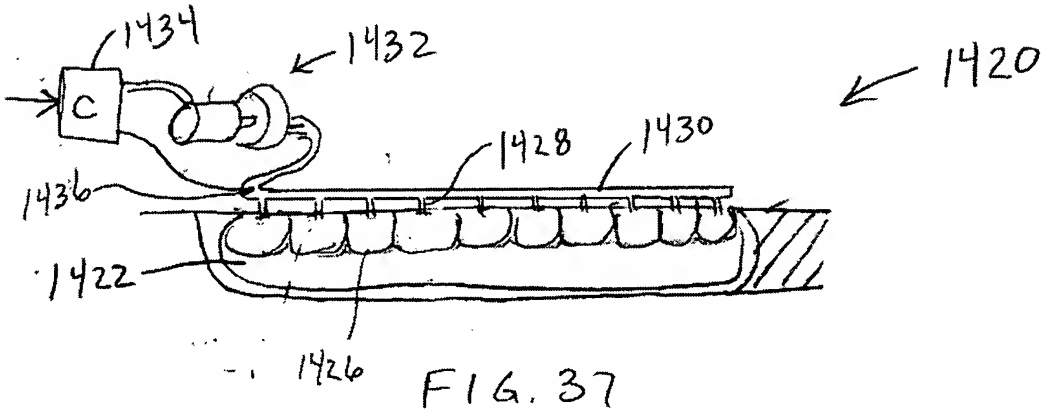


FIG. 37

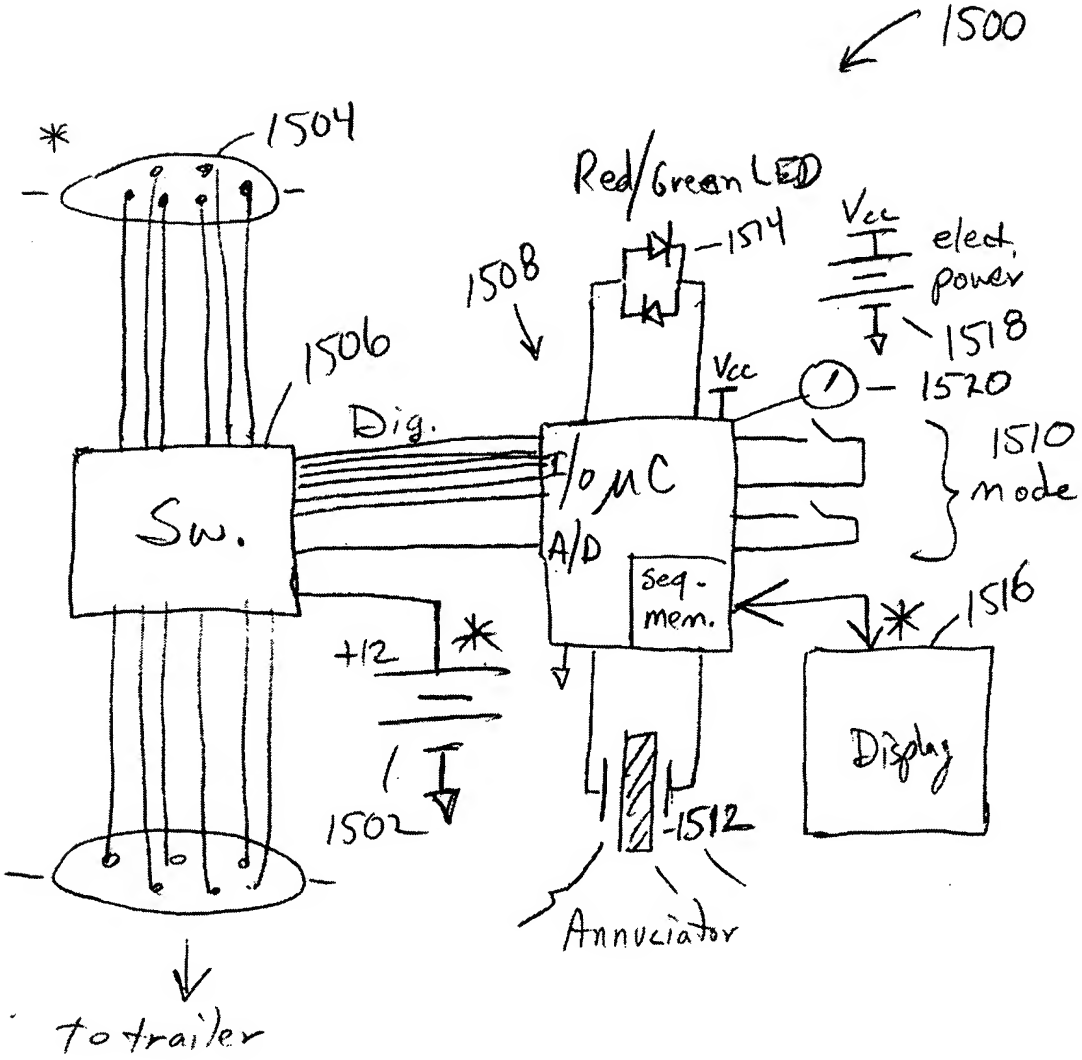

1500
1504
Red/Green LED
1514
Vcc
elect. power
1518
1508
1506
Vcc
1520
Dig.
1510
mode
I/O μC
A/D
Sw.
seg-men.
1516
+12
Display
1502
1512
Annunciator
to trailer

FIG. 38

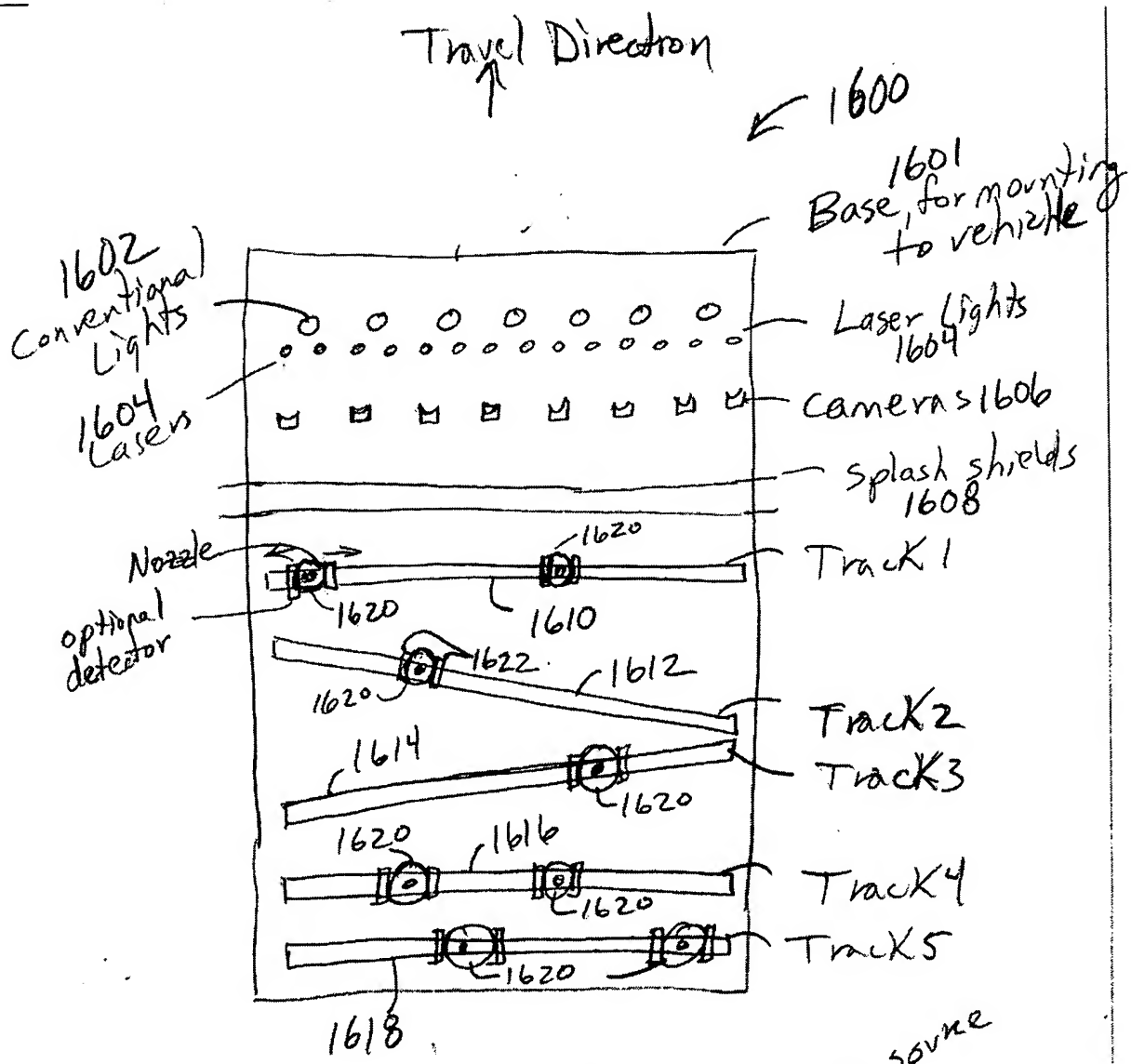

Travel Direction
1600
1601
Base, for mounting to vehicle
1602
Conventional Lights
Laser Lights 1604
1604 Lasers
Cameras 1606
Splash shields 1608
Nozzle
optional detector
1620
Track 1
1610
1622
1612
Track 2
1614
Track 3
1616
Track 4
Track 5
1618

FIG. 39

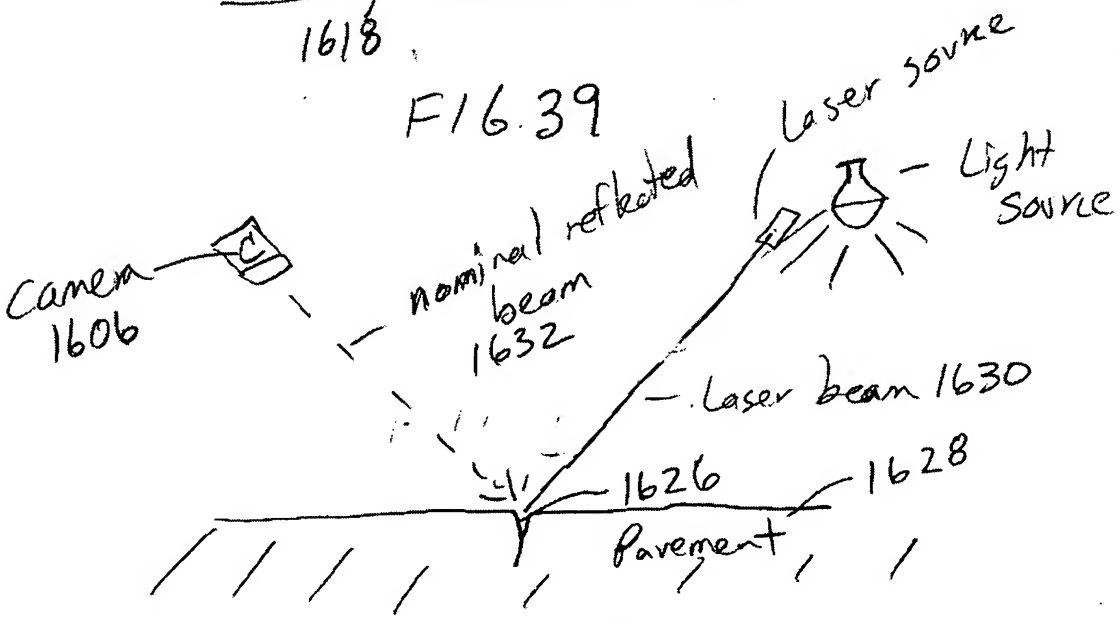

Laser source
Light Source
Camera 1606
nominal reflected beam 1632
Laser beam 1630
1626
1628
Pavement

FIG. 40

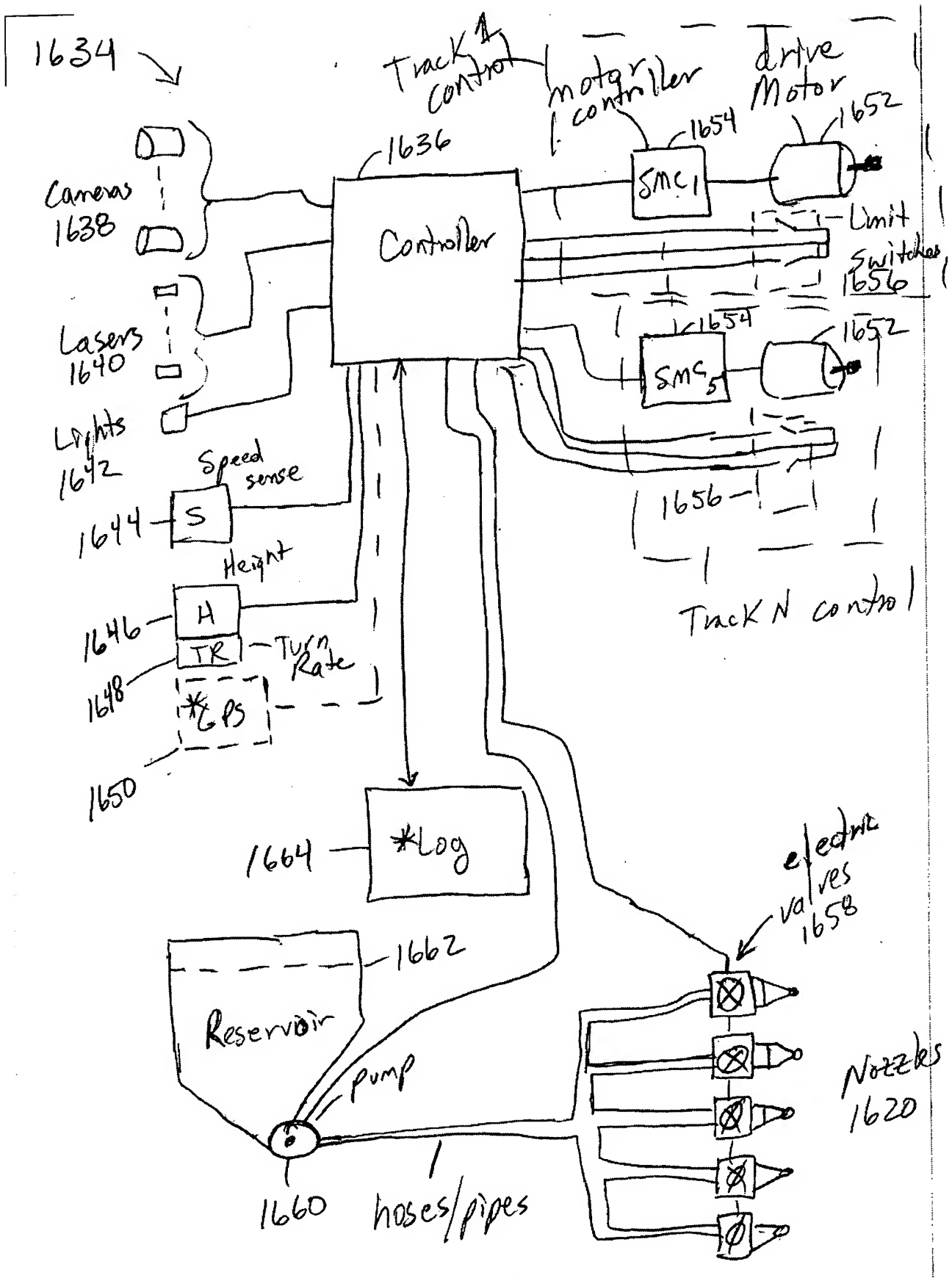

1634
Track control
motor controller
drive Motor
1652
1654
1636
Cameras 1638
Controller
SMC
Limit Switches 1656
Lasers 1640
Lights 1642
Speed sense
1644
S
Height
1646
H
TR
Turn Rate
1648
*GPS
1650
1656
Track N control
1664
*Log
electric valves 1658
1662
Reservoir
pump
Nozzles 1620
1660
hoses/pipes

FIG. 41

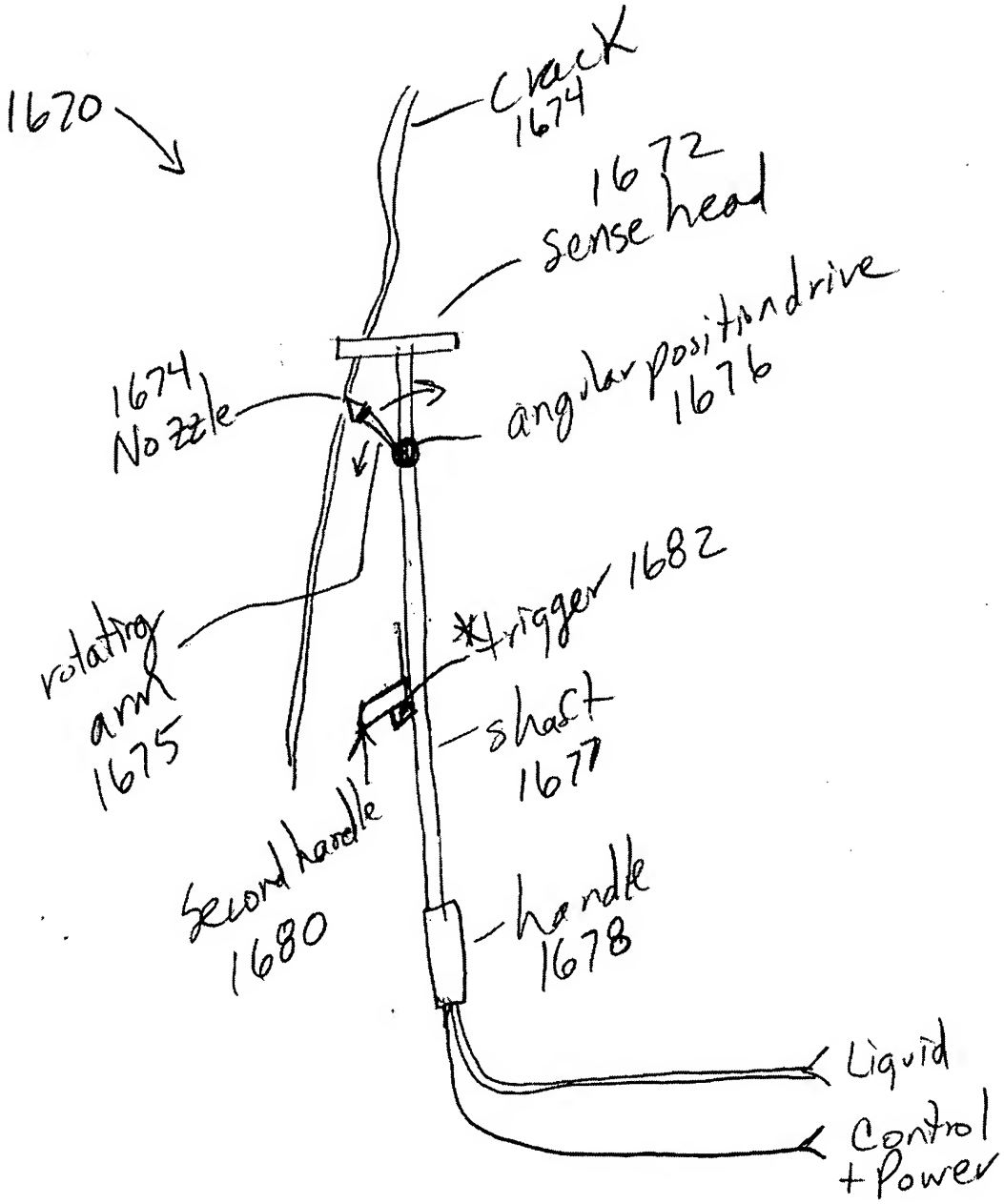

1670
crack
1674
1672
sense head
angular position drive
1676
1674
Nozzle
rotating
arm
1675
trigger 1682
shaft
1677
second handle
1680
handle
1678
Liquid
Control
+ Power

FIG. 42

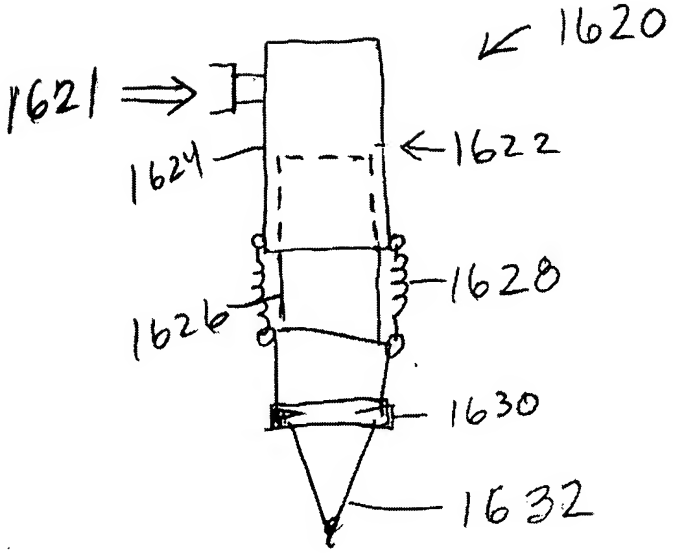


FIG. 43

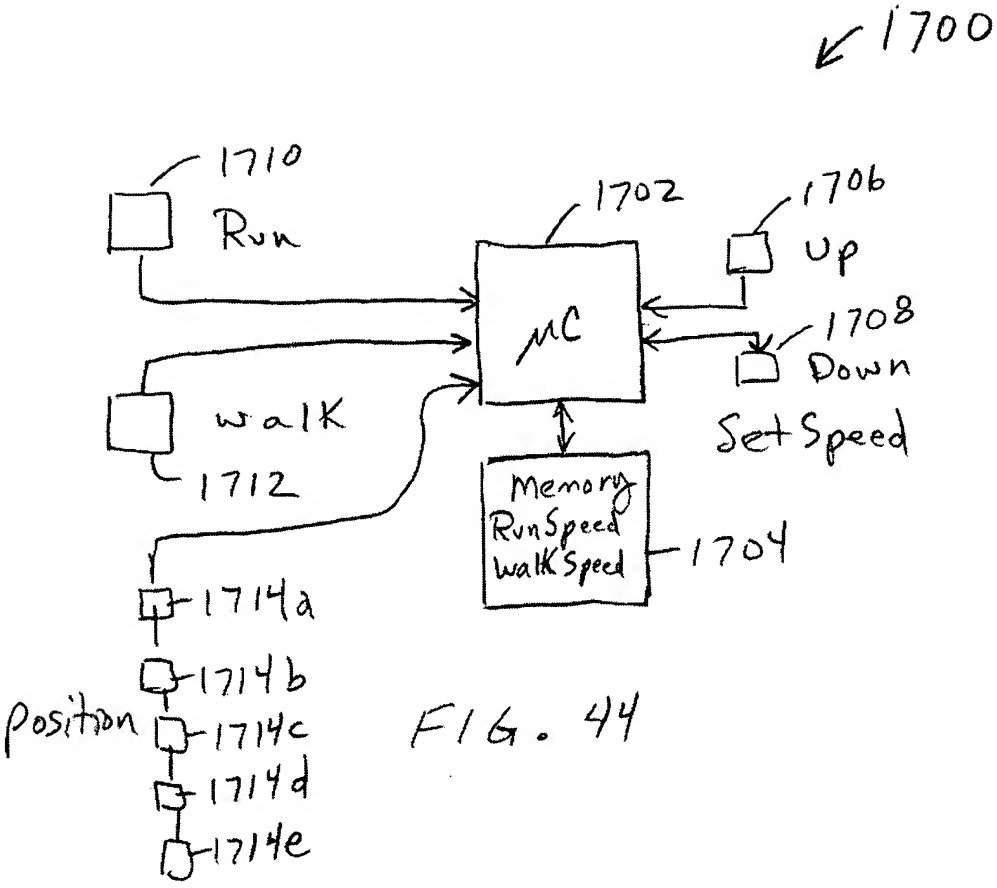

1700
1710
Run
1702
1706
Up
μC
1708
Down
Set Speed
walk
1712
Memory
Run Speed
walk Speed
1704
1714a
1714b
Position
1714c
1714d
1714e

FIG. 44

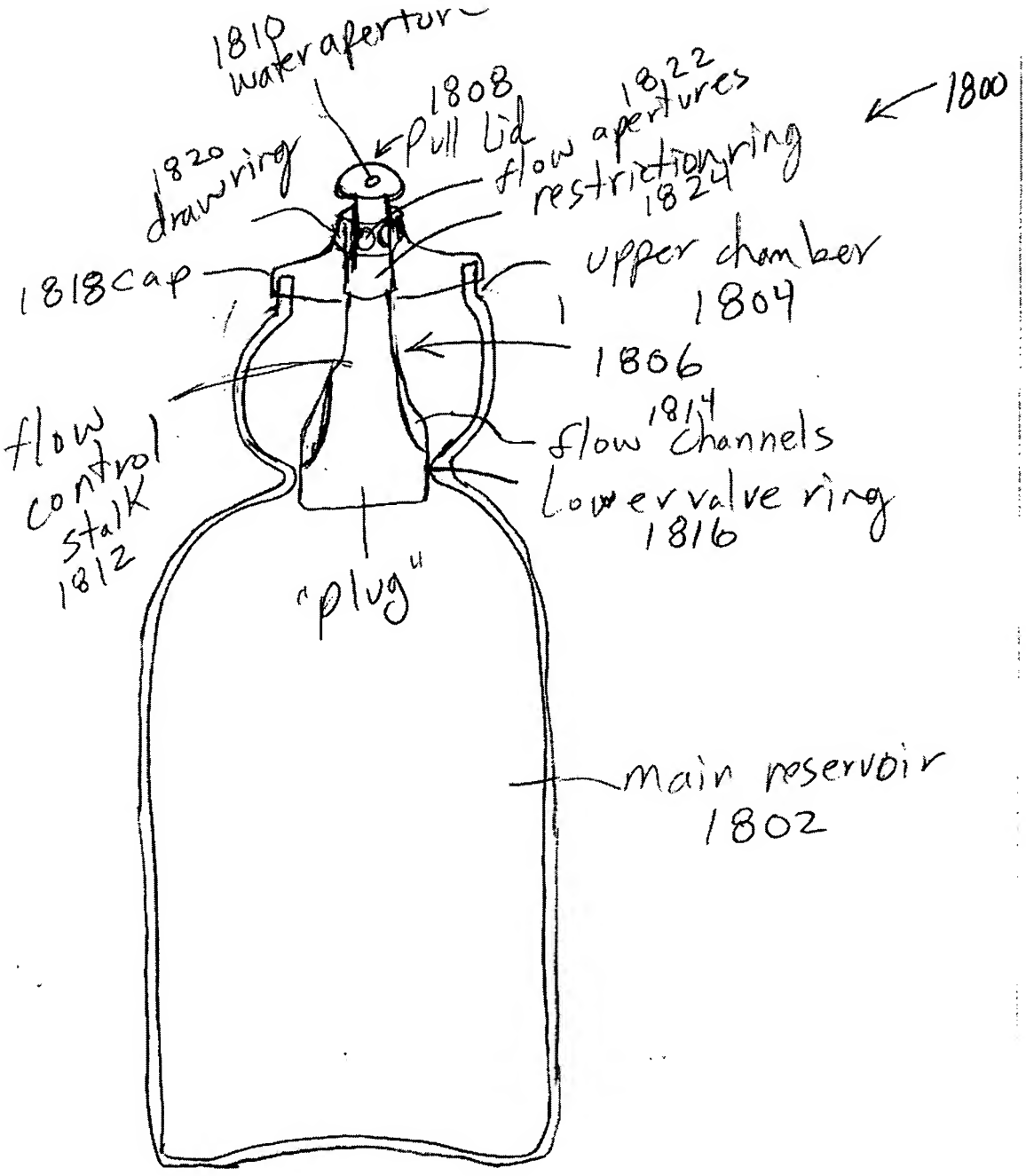

1810 water aperture
1808 Pull Lid
1822 flow apertures
1800
1820 draw ring
flow restriction ring 1824
1818 cap
upper chamber 1804
1806
flow control stalk 1812
1814 flow channels
lower valve ring 1816
"plug"
main reservoir 1802

FIG. 45

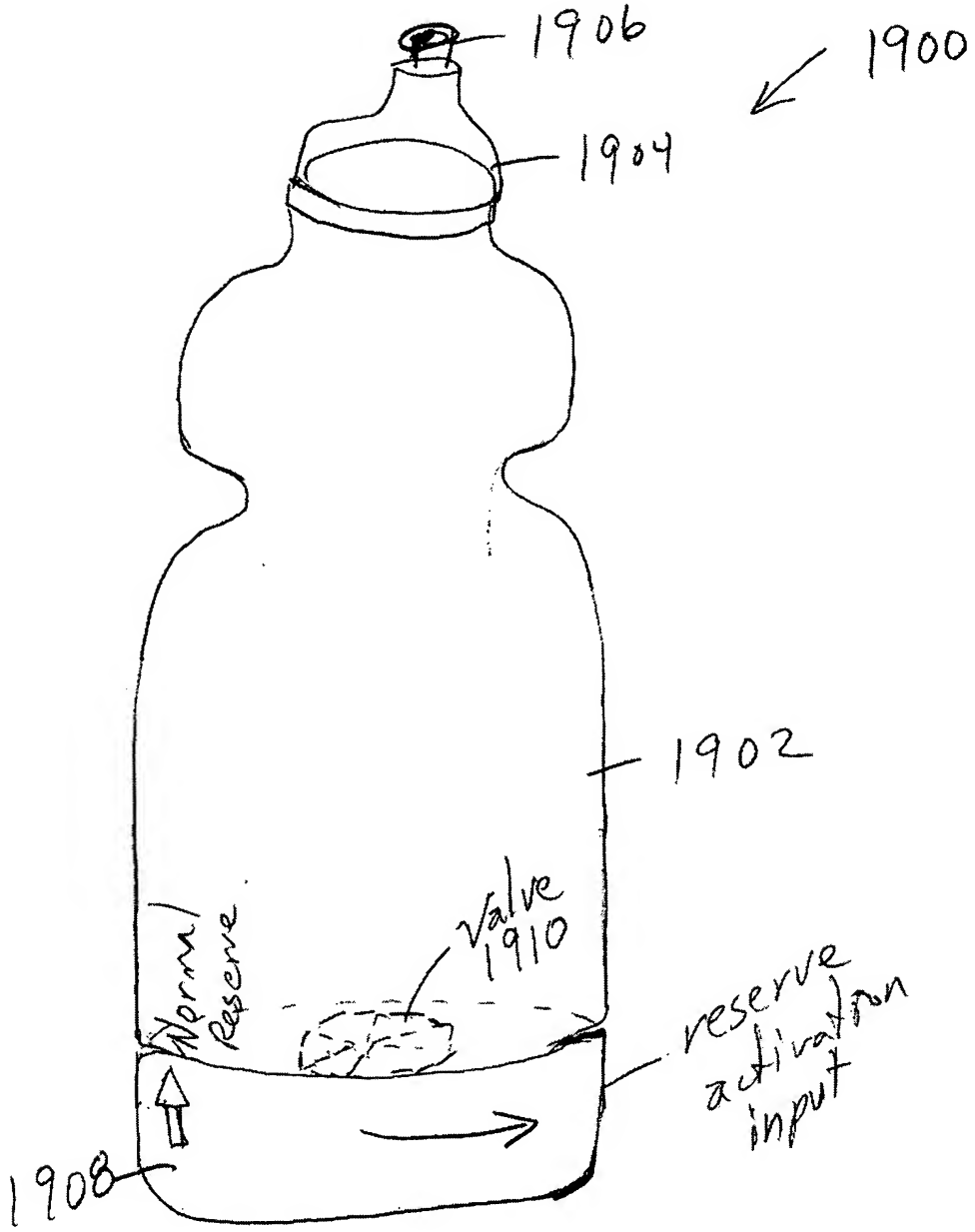

1906
1900
1904
1902
Valve
1910
Normal
Reserve
reserve
activation
input
1908

FIG. 46

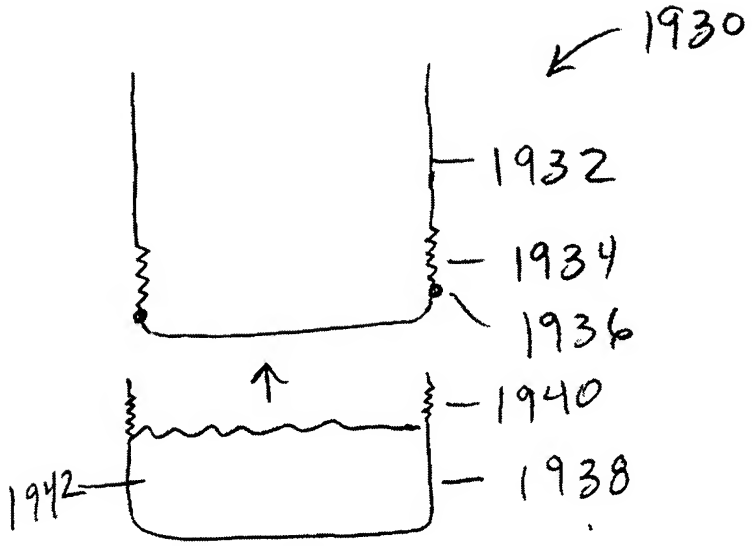

1930
1932
1934
1936
1940
1938
1942

FIG. 47

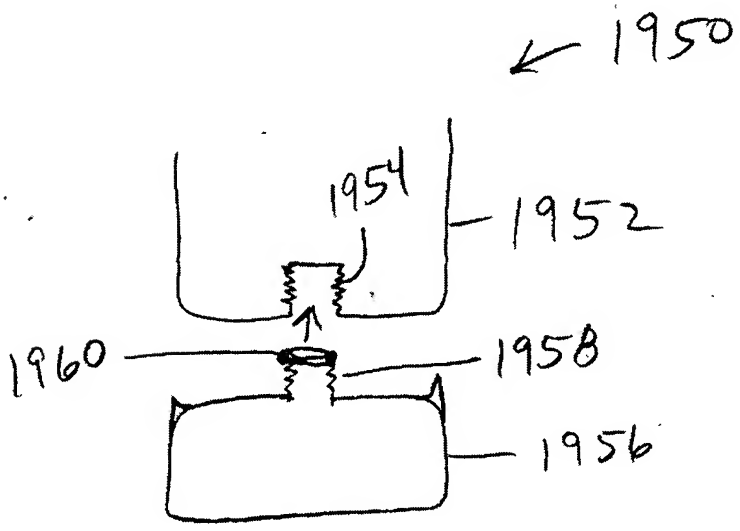

1950
1954
1952
1960
1958
1956

FIG. 48

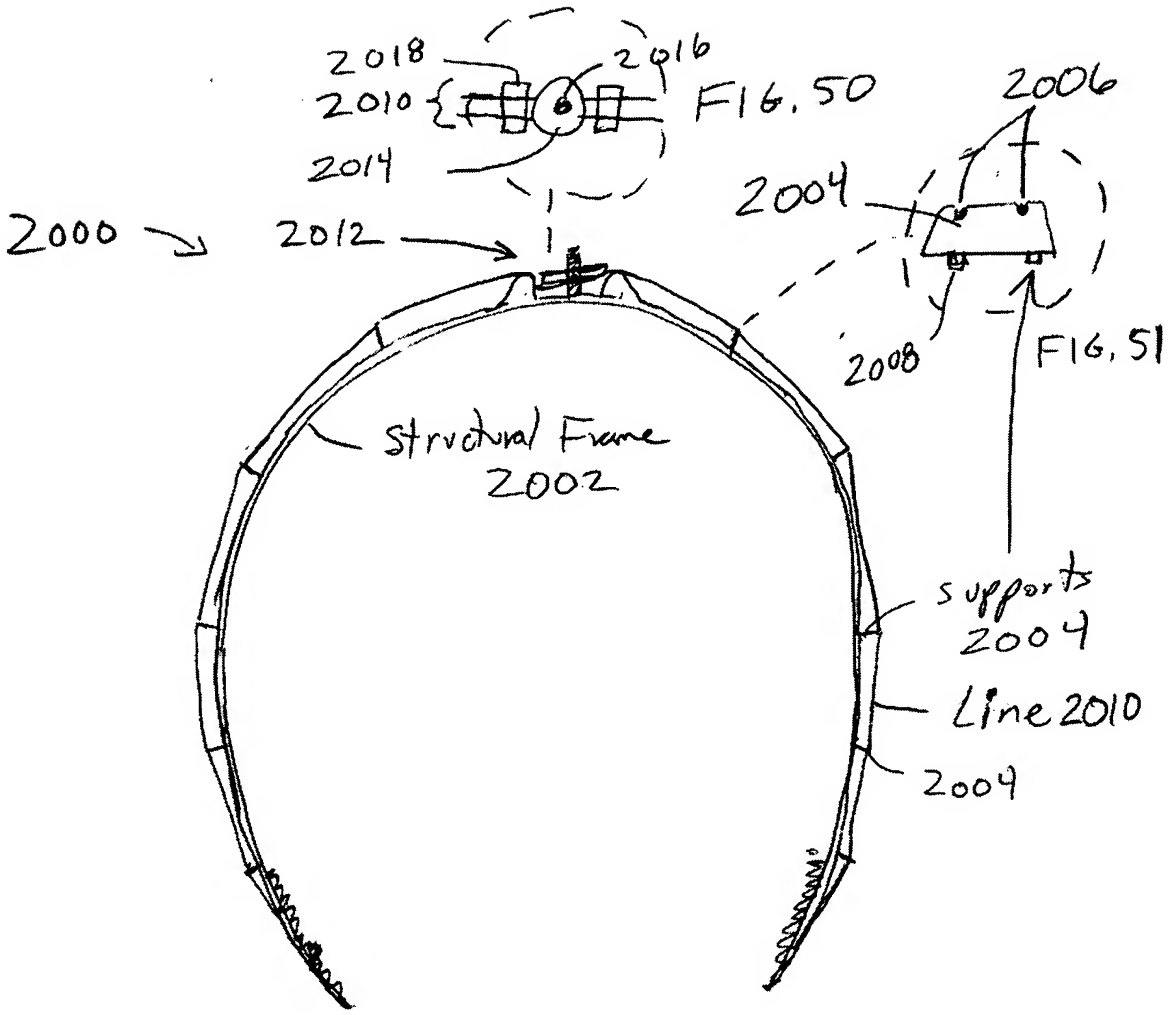

2018
2016
2010
2014
FIG. 50
2006
2004
2000
2012
2008
FIG. 51
Structural Frame
2002
supports
2004
Line 2010
2004

FIG. 49

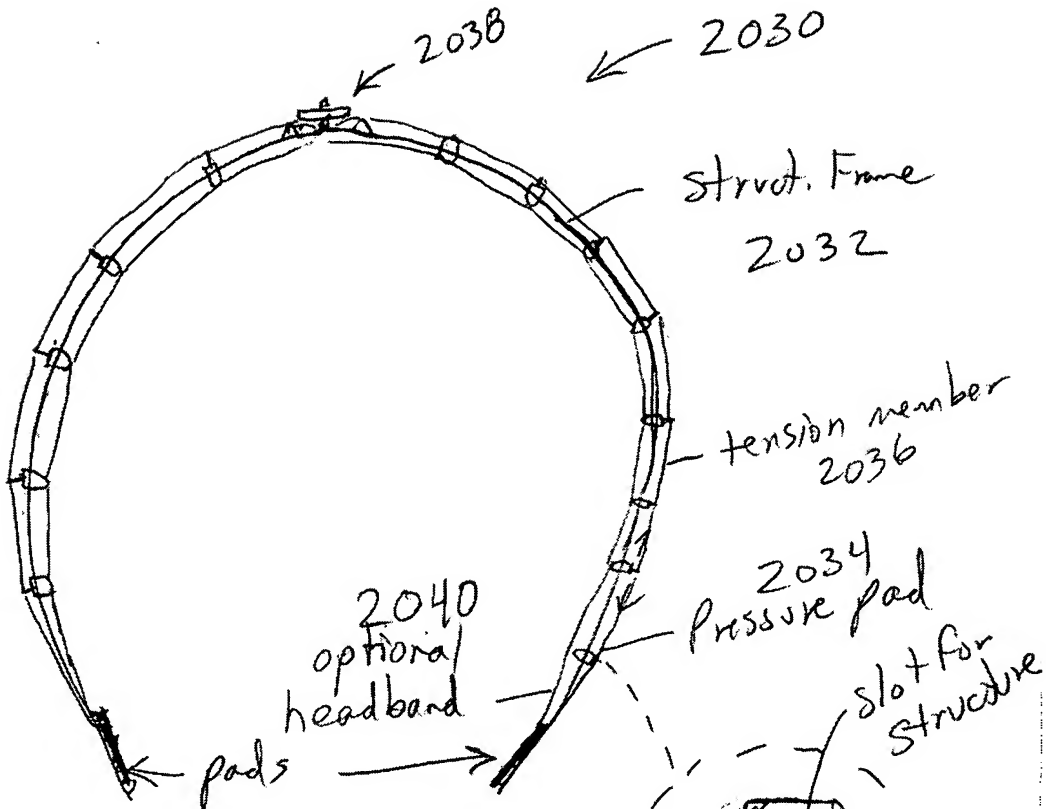

2038
2030
Struct. Frame
2032
tension member
2036
2034
Pressure pad
2040
optional
headband
pads
slot for
structure
headband
retention
member
2035
2034

FIG. 52

FIG 53

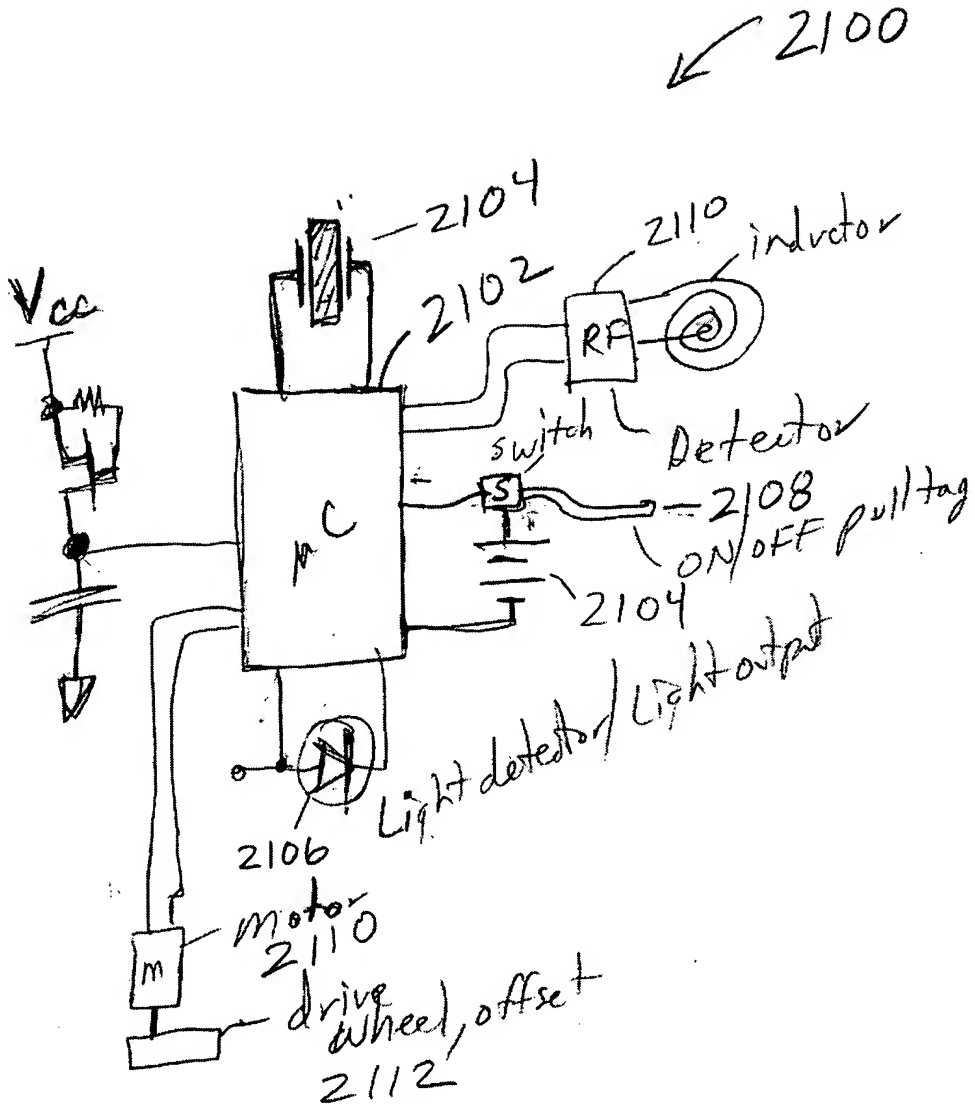

2100
2104
2102
2110
inductor
Vcc
RF
switch
Detector
S
2108
ON/OFF pull tag
μC
2104
Light detector/ Light output
2106
motor
2110
m
drive wheel, offset
2112

FIG. 54

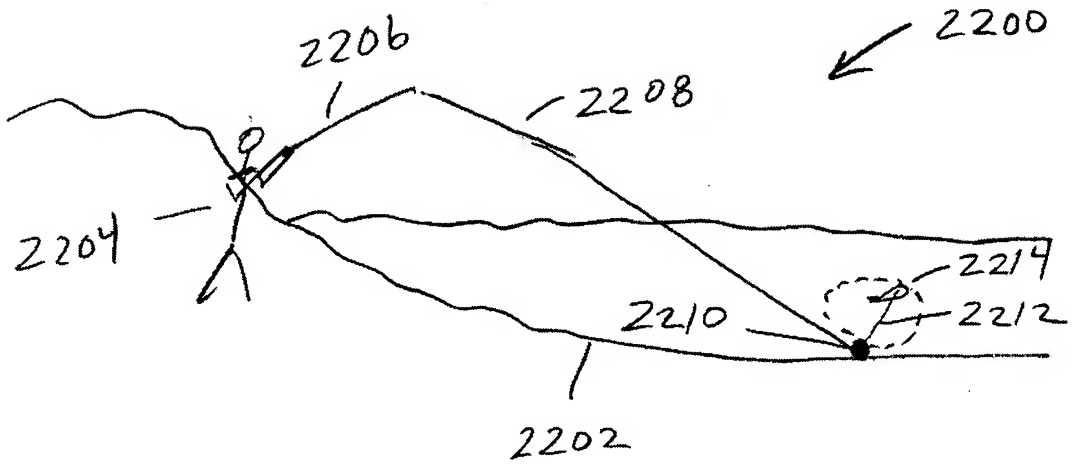

2200
2206
2208
2204
2214
2212
2210
2202

FIG. 55

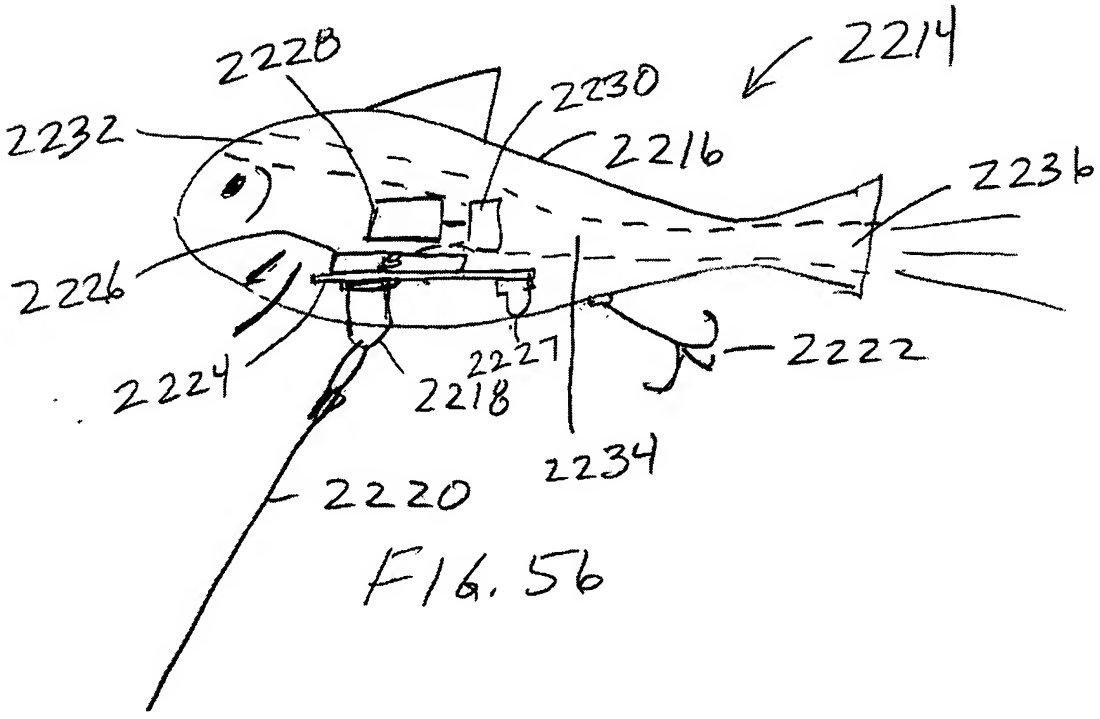

2214
2228
2230
2232
2216
2236
2226
2224
2227
2218
2222
2234
2220

FIG. 56